

UNIVERSITY of
HOUSTON

A CARNEGIE-DESIGNATED TIER ONE
PUBLIC RESEARCH UNIVERSITY

Cullen College of Engineering

Department of Electrical and Computer Engineering

UC 12782 145

APPROVED APR 23 2014

RECEIVED FEB 26 2014

To: The Undergraduate Committee
University of Houston

From: The Department of Electrical and Computer Engineering
Cullen College of Engineering

Contact Person: Dr. Len Trombetta, Associate Professor in ECE
Phone: 713/743-4424 Email: ltrombetta@uh.edu

Date: February 20, 2014

Re: Update to the ECE Program Curricula

The Department of Electrical and Computer Engineering and the College of Engineering Undergraduate Curriculum Committee have approved changes to two programs, Bachelor of Science in Electrical Engineering and Bachelor of Science in Computer Engineering, as described herein. We believe these changes will benefit students because they make it easier to navigate the curriculum and they are more informative as to curriculum options. In addition, they reduce total credit hours for both programs to 129.

We respectfully request consideration of our proposal by the Undergraduate Committee, in hopes that we may move toward implementation of the new curricula in Fall 2014.

Dean's Signature

David P. Shattuck

Date 20 FEB 2014

On this page and the next, we have summarized the changes to the current degree Electrical and Computer Engineering degree programs.

1. General Changes to the Curriculum

a) Students select one of six Electrical Engineering concentration areas beginning in the third year. A total of seven lecture courses and four laboratory courses in the concentration area must be successfully completed. Depending on the concentration area, some of these seven are required. Concentration area courses and electives are selected as follows.

Category 1: All courses specified in Category 1 are required for the concentration area.

Category 2: Electives are chosen from Category 2 so as to complete seven lecture and four laboratory courses in the concentration area.

ECE Electives: Two ECE courses at the 3-, 4-, or 5000 level are chosen. The student must also satisfy any prerequisites specified for the chosen courses.

Technical Elective: One course is chosen from an approved list of courses. Alternatively, a third ECE elective may be chosen.

b) The EE Computer Option is no longer available. Instead, the concentration area “Computers and Embedded Systems” is offered, and is nearly equivalent.

c) An additional first semester course, ENGI 1100, is required. Transfer students may get credit for this course.

d) The laboratories associated with University Physics I (Phys 1121 and Phys 1122) have been added.

e) The total credit hour count for each program is 129, reduced from 131 and 130 for BSEE and the BScpE, respectively.

2. Semester-by-Semester Changes: BSEE

a) **Year 1 Fall Semester:** POLS 1336 is moved (to the 6th semester) and ENGI 1100 (Intro to Engineering) is added.

b) **Year 1 Spring Semester:** PHYS 1121 (Physics Lab I) is added.

c) **Year 2 Fall Semester:** PHYS 1122 (Physics Lab II) is added.

d) **Year 2 Spring Semester:** ECE 2317 (E&M Statics) is replaced by ECE 3317 (E&M Waves). ECE 4436 (Microprocessor Systems) is moved to this semester from Year 3 Spring Semester.

e) **Year 3 Fall Semester:** ECE 3364 (Circuits and Systems) and ECE 3441 (Digital Logic Design) is no longer required. An ECE elective and a concentration elective are added.

f) **Year 3 Spring Semester:** ECE 4339/4119 (Solid State Devices) are no longer required. ENGI 2334 is no longer required. POLS 1336 has been moved to this semester. One concentration elective and one elective lab are added. ECE 2331 (Numerical Methods) is added.

g) **Year 4 Fall Semester:** MECE 3400 is no longer required. One ECE elective and one ECE elective/lab are replaced by 2 concentration electives, one technical elective, and one elective lab.

h) **Year 4 Spring Semester:** Two ECE elective/lab courses and an ECE elective are replaced by 3 concentration electives and 2 concentration labs.

3. Semester-by-Semester Changes: BSCpE

- a) **The first four semesters** are identical to the new BSEE program.
- b) **Year 3 Fall Semester:** INDE 2333 is moved to the following semester. ECE 3317 is added to this semester.
- c) **Year 3 Spring Semester:** INDE 2333 is moved to this semester. ECE 4436 is moved to the Year 2 Spring Semester. Approved ECE or COSC Elective is replaced by CPE Elective/Lab. MATH 3336 moves to Year 4 Spring Semester. ECON 2304 moves to the following semester. ECE 3457 (Digital Electronics) moves here.
- d) **Year 4 Fall Semester:** ECE 3457 moves to the previous semester. ECON 2304 moves to this semester.
- e) **Year 4 Spring Semester:** COSC 4330 is required in CpE. Approved Computer Engineering Elective is replaced by ECE/COSC Elective/Lab. ECE Elective is added.

4. Changes to the Engineering Footnotes page

The Engineering Footnotes page must change to reflect new electives. We have included the changes to the footnotes page in the proposal. The footnotes refer to documents that will be posted on the ECE Website. They will not be in the catalog, but are also included here to clarify the proposal.

CURRENT DEGREE PLAN: Electrical Engineering, B.S.E.E.

Electrical engineering students may choose from two degree plan options, both leading to the BSEE degree: the Electrical Engineering Option and the Computer Engineering Option. The first and second years are the same for both options:

First Year

Fall Semester

- CHEM 1117 - Fundamentals of Chemistry for Engineers Laboratory **Credit Hours: 1.0**
- CHEM 1372 - Fundamentals of Chemistry for Engineers **Credit Hours: 3.0**
- ECE 1100 - Introduction to Electrical and Computer Engineering **Credit Hours: 1.0**
- ENGL 1303 - First Year Writing I **Credit Hours: 3.0**
- HIST 1377 - The United States to 1877 **Credit Hours: 3.0**¹
- MATH 1431 - Calculus I **Credit Hours: 4.0**²
- ~~POLS 1336 - U.S. and Texas Constitutions and Politics **Credit Hours: 3.0**~~⁴ → Year 2 fall
- ENGI 1100 is added

Total 18

Spring Semester

- ECE 1331 - Computers and Problems Solving **Credit Hours: 3.0**
- ENGL 1304 - First Year Writing II **Credit Hours: 3.0**
- HIST 1378 - The United States Since 1877 **Credit Hours: 3.0**¹
- MATH 1432 - Calculus II **Credit Hours: 4.0**
- PHYS 1321 - University Physics I **Credit Hours: 3.0** PHYS 1121 is added

Total 16

Second Year

Fall Semester

- ECE 2100 - Circuit Analysis Laboratory **Credit Hours: 1.0**
- ECE 2300 - Circuit Analysis **Credit Hours: 3.0**
- MATH 2433 - Calculus III **Credit Hours: 4.0**
- MATH 3321 - Engineering Mathematics **Credit Hours: 3.0**
- PHYS 1322 - University Physics II **Credit Hours: 3.0** PHYS 1122 is added
- ~~POLS 1337 - U.S. Government: Congress, President, and Courts **Cr. Hours 3.0**~~⁴ → Year 3 spring
- POLS 1336 moves here

Total 17

Spring Semester

- ~~ECE 2317 - Applied Electricity and Magnetism **Credit Hours: 3.0**~~ → elective
- ECE 3331 - Programming Applications in Electrical and Computer Engineering **Credit Hours: 3.0**
- ECE 3337 - Signals and Systems Analysis **Credit Hours: 3.0**
- ENGI 2304 - Technical Communications **Credit Hours: 3.0**
- Visual and Performing Arts Core Course **Cr. 3.**
- ECE 4436 is moved here from Year 3 Spring

Total 15

Third and Fourth Year, EE Option

Students choosing the EE option must select their ECE electives as follows: At least 21 hours consisting of at least six ECE electives (3- or 4-hour ECE courses with associated labs) satisfying:

- **Breadth Requirement:** At least one course must be taken in each of two of the following ECE concentration areas: (1) Electromagnetics and Solid State Devices, (2) Power and Controls, (3) Signals and Communications, (4) Electronics. Courses available in each area are posted in the department.
- **Depth Requirement:** At least two additional courses must be taken at the 5000-level.
- Two remaining courses may be any ECE elective at the 3000-level or above except ECE 3336 .

Third Year-EE Option

Fall Semester

- ECE 3155 - Electronics Laboratory **Credit Hours: 1.0**
- ECE 3317 - Applied Electromagnetic Waves **Credit Hours: 3.0**
- ECE 3355 - Electronics **Credit Hours: 3.0**
- ~~ECE 3364 - Circuits and Systems **Credit Hours: 3.0** → elective~~
- ~~ECE 3441 - Digital Logic Design **Credit Hours: 4.0** → elective~~
- Humanities Core Course **Cr. 3.**
- ECE Elective is added.
- Concentration elective is added.

Total 17

Spring Semester

- ~~ECE 4119 - Solid State Devices Laboratory **Credit Hours: 1.0** → elective~~
- ~~ECE 4339 - Physical Principles of Solid State Devices **Credit Hours: 3.0** → elective~~
- ~~ECE 4436 - Microprocessor Systems **Credit Hours: 4.0** → to Year 2 spring~~
- ECE Elective **Cr. 3.**
- ~~ENGI 2334 - Introduction to Thermodynamics **Credit Hours: 3.0** removed~~
- INDE 2333 - Engineering Statistics I **Credit Hours: 3.0**
- POLS 1337 moves here
- One concentration electives and an elective/lab are added
- ECE 2331 is added

Total 17

Fourth Year-EE Option

Fall Semester

- ECE 4435 - Electrical & Computer Engineering Systems Design I **Cr. 3.**
- ~~ECE Elective **Cr. 3.** → concentration elective~~
- ~~ECE Elective/Lab **Cr. 4.** → elective lab~~
- ECON 2304 - Microeconomic Principles **Credit Hours: 3.0**
- ~~MECE 3400 - Introduction to Mechanics **Credit Hours: 4.0** removed~~
- Concentration elective and technical elective are added

Total 17

Spring Semester

- ECE 4336 - Electrical and Computer Engineering Design II **Credit Hours: 3.0**
- ~~ECE Elective/Lab **Cr. 4.** → elective lab~~
- ~~ECE Elective/Lab **Cr. 4.** → concentration elective~~
- ~~ECE Elective **Cr. 3.** → concentration elective~~

- Concentration elective and elective lab are added

Total 14

Degree Total Hours: 131

The Computer Options is no longer available. The concentration area "Computers and Embedded Systems" is offered, and is equivalent.

Third and Fourth Year, Computer Option

Students choosing the computer option must select their ECE electives as follows: At least 7 hours consisting of at least two ECE electives. The electives may consist of any non-required 3 hour lecture or 4 hour lecture/lab ECE courses at the 3000 level or higher except ECE 3336 .

Third Year-Computer Option

Fall Semester

- COSC 1320 - Introduction to Computer Science II **Credit Hours: 3.0**
- ECE 3155 - Electronics Laboratory **Credit Hours: 1.0**
- ECE 3317 - Applied Electromagnetic Waves **Credit Hours: 3.0**
- ECE 3355 - Electronics **Credit Hours: 3.0**
- ECE 3441 - Digital Logic Design **Credit Hours: 4.0**
- Humanities Core Course **Cr. 3.**

Total 17

Spring Semester

- COSC 2320 - Data Structures **Credit Hours: 3.0**
- ECE 4119 - Solid State Devices Laboratory **Credit Hours: 1.0**
- ECE 4339 - Physical Principles of Solid State Devices **Credit Hours: 3.0**
- ECE 4436 - Microprocessor Systems **Credit Hours: 4.0**
- ECON 2304 - Microeconomic Principles **Credit Hours: 3.0**
- INDE 2333 - Engineering Statistics I **Credit Hours: 3.0**

Total 17

Fourth Year-Computer Option

Fall Semester

- ECE 3457 - Digital Electronics **Credit Hours: 4.0**
- ECE 4335 - Electrical and Computer Engineering Design I **Credit Hours: 3.0**
- ECE 5367 - Introduction to Computer Architecture and Design **Credit Hours: 3.0**
- ECE Elective **Cr. 3.**
- Approved Computer Engineering elective **Cr. 4.** ¹⁴

Total 17

Spring Semester

- COSC 4330 - Fundamentals of Operating Systems **Credit Hours: 3.0**
- ECE 4336 - Electrical and Computer Engineering Design II **Credit Hours: 3.0**
- Approved Computer Engineering elective **Cr. 4.** ¹⁴
- ECE Elective/Lab **Cr. 4.**

Total 14

Degree Total: 131

PROPOSED DEGREE PLAN: Electrical Engineering, B.S.E.E.

ECE Base

In the ECE Department, taking courses in either degree plan is organized into two phases. The first two years are the ECE Base. The ECE Base provides fundamental skills in math, science, and electrical engineering, and is identical for BSEE and BSCpE majors.

BSEE Degree Plan

In the last two years of the BSEE degree plan, students must choose one of six Concentration Areas. The Concentration Area allows the student to choose a subset of Electrical Engineering that is of particular interest to the student, while still encouraging the student to take courses in related areas.

All students in the BSEE program must submit an Application for Concentration Area (available in the ECE Department) prior to enrolling in their first Concentration Elective. The student will then be assigned a Faculty Advisor in the chosen Concentration Area. Following the initial advising session with the Faculty Advisor, the student may enroll in the Concentration Area.

First Year

Fall Semester

- CHEM 1117 - Fundamentals of Chemistry for Engineers Laboratory **Credit Hours: 1.0**
- CHEM 1372 - Fundamentals of Chemistry for Engineers **Credit Hours: 3.0**
- ECE 1100 - Introduction to Electrical and Computer Engineering **Credit Hours: 1.0**
- ENGI 1100 – Introduction to Engineering **Credit Hours: 1.0**
- ENGL 1303 - First Year Writing I **Credit Hours: 3.0**
- HIST 1377 - The United States to 1877 **Credit Hours: 3.0** ¹
- MATH 1431 - Calculus I **Credit Hours: 4.0** ²

Total 16

Spring Semester

- ECE 1331 - Computers and Problems Solving **Credit Hours: 3.0**
- ENGL 1304 - First Year Writing II **Credit Hours: 3.0**
- HIST 1378 - The United States Since 1877 **Credit Hours: 3.0** ¹
- MATH 1432 - Calculus II **Credit Hours: 4.0**
- PHYS 1321 - University Physics I **Credit Hours: 3.0**
- PHYS 1121 - Physics Laboratory I **Credit Hours: 1.0**

Total 17

Second Year

Fall Semester

- ECE 2100 - Circuit Analysis Laboratory **Credit Hours: 1.0**
- ECE 2300 - Circuit Analysis **Credit Hours: 3.0**
- MATH 2433 - Calculus III **Credit Hours: 4.0**
- MATH 3321 - Engineering Mathematics **Credit Hours: 3.0**
- PHYS 1322 - University Physics II **Credit Hours: 3.0**
- PHYS 1122 – Physics Lab II **Credit Hours: 1.0**

- POLS 1336 - US and Texas Constitutions and Politics **Credit Hours: 3.0**¹

Total 18

Spring Semester

- ECE 4436 - Microprocessor Systems **Credit Hours: 4.0**
- ECE 3331 - Programming Applications in Electrical and Computer Engineering **Credit Hours: 3.0**
- ECE 3337 - Signals and Systems Analysis **Credit Hours: 3.0**
- ENGI 2304 - Technical Communications **Credit Hours: 3.0**
- Visual and Performing Arts Core Course **Credit Hours: 3.0**

Total 16

Third and Fourth Year

Students must select one of the six Electrical Engineering concentration areas. A total of seven lecture courses and four laboratory courses in the concentration area must be successfully completed. Courses are selected as follows.

Category 1: Courses specified in Category 1 are required for the concentration area.

Category 2: Electives are chosen from Category 2 so as to complete seven lecture and four laboratory courses in the concentration area.

ECE Electives: Two ECE courses at the 3-, 4-, or 5000 level are chosen. The student must also satisfy any prerequisites specified for the chosen courses.

Technical Elective: One course is chosen from an approved list of courses. Alternatively, a third ECE elective may be chosen.

Third Year

Fall Semester

- ECE 3355 - Electronics **Credit Hours: 3.0**
- ECE 3155 - Electronics Laboratory **Credit Hours: 1.0**
- ECE 3317 - Applied Electromagnetic Waves **Credit Hours: 3.0**
- Concentration Elective **Credit Hours: 3.0**⁹
- ECE Elective **Credit Hours: 3.0**⁹
- Humanities Core Course **Credit Hours 3.0**

Total 16

Spring Semester

- Concentration Elective **Credit Hours: 3.0**⁹
- ECE 2331 – Numerical Methods **Credit Hours: 3.0**
- ECE Elective **Credit Hours: 3.0**⁹
- Elective Lab **Credit Hours: 1.0**⁹
- POLS 1337 – U.S. Government: Congress, President, and Courts **Credit Hours: 3.0**¹
- INDE 2333 - Engineering Statistics I **Credit Hours: 3.0**

Total 16

Fourth Year

Fall Semester

- ECE 4335 - Electrical and Computer Engineering Design I **Credit Hours: 3.0**
- Concentration Elective **Credit Hours: 3.0**⁹

- Concentration Elective **Credit Hours: 3.0**⁹
- Elective Lab **Credit Hours: 1.0**⁹
- Technical Elective **Credit Hours: 3.0**⁹
- ECON 2304 - Microeconomic Principles **Credit Hours: 3.0**

Total 16

Spring Semester

- ECE 4336 - Electrical and Computer Engineering Design II **Credit Hours: 3.0**
- Concentration Elective **Credit Hours: 3.0**⁹
- Concentration Elective **Credit Hours: 3.0**⁹
- Concentration Elective **Credit Hours: 3.0**⁹
- Elective Lab **Credit Hours: 1.0**⁹
- Elective Lab **Credit Hours: 1.0**⁹

Total 14

Degree Total Hours: 129

CURRENT DEGREE PLAN: Computer Engineering, B.S.Cp.E.

First Year

Fall Semester

- CHEM 1117 - Fundamentals of Chemistry for Engineers Laboratory **Credit Hours: 1.0**
- CHEM 1372 - Fundamentals of Chemistry for Engineers **Credit Hours: 3.0**
- ECE 1100 - Introduction to Electrical and Computer Engineering **Credit Hours: 1.0**
- ENGL 1303 - First Year Writing I **Credit Hours: 3.0**
- HIST 1377 - The United States to 1877 **Credit Hours: 3.0** ¹
- MATH 1431 - Calculus I **Credit Hours: 4.0** ²
- ~~POLS 1336 - U.S. and Texas Constitutions and Politics **Credit Hours: 3.0**~~ ⁴ → to Year 2 fall

Total 18

Spring Semester

- ECE 1331 - Computers and Problems Solving **Credit Hours: 3.0**
- ENGL 1304 - First Year Writing II **Credit Hours: 3.0**
- HIST 1378 - The United States Since 1877 **Credit Hours: 3.0** ¹
- MATH 1432 - Calculus II **Credit Hours: 4.0**
- PHYS 1321 - University Physics I **Credit Hours: 3.0** **PHYS 1121 is added**

Total 16

Second Year

Fall Semester

- ECE 2100 - Circuit Analysis Laboratory **Credit Hours: 1.0**
- ECE 2300 - Circuit Analysis **Credit Hours: 3.0**
- MATH 2433 - Calculus III **Credit Hours: 4.0**
- MATH 3321 - Engineering Mathematics **Credit Hours: 3.0**
- ~~POLS 1337 - U.S. Government: Congress, President, and Courts **Cr. Hours: 3.0**~~ ⁴ → Year 3 spring
- PHYS 1322 - University Physics II **Credit Hours: 3.0** **PHYS 1122 is added**
- **POLS 1336 is moved here.**

Total 17

Spring Semester

- ~~ECE 2317 - Applied Electricity and Magnetism **Credit Hours: 3.0**~~ → **elective**
- ECE 3331 - Programming Applications in Electrical and Computer Engineering **Credit Hours: 3.0**
- ECE 3337 - Signals and Systems Analysis **Credit Hours: 3.0**
- ENGI 2304 - Technical Communications **Credit Hours: 3.0**
- Visual and Performing Arts Core Course **Cr. 3.**
- **ECE 4436 is moved here from Year 3 spring**

Total 15

Third Year

Fall Semester

- COSC 1320 - Introduction to Computer Science II **Credit Hours: 3.0**

- ECE 3155 - Electronics Laboratory **Credit Hours: 1.0**
- ECE 3355 - Electronics **Credit Hours: 3.0**
- ECE 3441 - Digital Logic Design **Credit Hours: 4.0**
- ~~INDE 2333 - Engineering Statistics I **Credit Hours: 3.0**~~ → move to Year 3 spring
- Visual and Performing Arts Core Course **Cr. 3.**
- ECE 3317 is added.

Total 17

Spring Semester

- COSC 2320 - Data Structures **Credit Hours: 3.0**
- ~~ECE 4436 - Microprocessor Systems **Credit Hours: 4.0**~~ → to Year 2 spring
- ~~Approved ECE or COSC Elective **Cr. 3.**~~⁹ → CpE Elective/Lab
- ~~ECON 2304 - Microeconomic Principles **Cr. 3.**~~ → to Year 4 fall
- ~~MATH 3336 - Discrete Mathematics **Credit Hours: 3.0**~~ → to Year 4 spring
- INDE 2333 is moved here
- ECE 3457 is moved here
- POLS 1337 is moved here

Total 16

Fourth Year

Fall Semester

- COSC 4351 - Fundamentals of Software Engineering **Credit Hours: 3.0**
- ~~ECE 3457 - Digital Electronics **Credit Hours: 4.0**~~ → to Year 3 spring
- ECE 4335 - Electrical and Computer Engineering Design I **Credit Hours: 3.0**
- ECE 5367 - Introduction to Computer Architecture and Design **Credit Hours: 3.0**
- Approved Computer Engineering elective **Cr. 4.**¹⁴
- ECON 2304 moves to this semester.

Total 17

Spring Semester

- ~~COSC 4330 - Fundamentals of Operating Systems **Credit Hours: 3.0**~~ is no longer required
- ECE 4336 - Electrical and Computer Engineering Design II **Credit Hours: 3.0**
- ~~Approved Computer Engineering elective **Cr. 4.**~~¹⁴ → ECE/COSC Elective/Lab
- ~~ECE Elective/Lab **Cr. 4.**~~¹⁰ → ECE Elective
- MATH 3336 is moved here.

Total 14

Degree Total: 130

ECE Base

In the ECE Department, taking courses in either degree plan is organized into two phases. The first two years are the ECE Base. The ECE Base provides fundamental skills in math, science, and electrical engineering, and is identical for BSEE and BSCpE majors.

BSCpE Degree Plan

In the last two years of the BSCpE degree plan, students specialize in Computer Engineering, including a mix of Electrical Engineering and Computer Science courses.

All students in the BSCpE program are assigned a Faculty Advisor in the Computer Engineering area and must meet with that advisor before taking courses in the last two years of the degree plan.

PROPOSED DEGREE PLAN: Computer Engineering, B.S.Cp.E.

First Year

Fall Semester

- CHEM 1117 - Fundamentals of Chemistry for Engineers Laboratory **Credit Hours: 1.0**
- CHEM 1372 - Fundamentals of Chemistry for Engineers **Credit Hours: 3.0**
- ECE 1100 - Introduction to Electrical and Computer Engineering **Credit Hours: 1.0**
- ENGI 1100 – Introduction to Engineering **Credit Hours: 1.0**
- ENGL 1303 - First Year Writing I **Credit Hours: 3.0**
- HIST 1377 - The United States to 1877 **Credit Hours: 3.0** ¹
- MATH 1431 - Calculus I **Credit Hours: 4.0** ²

Total 16

Spring Semester

- ECE 1331 - Computers and Problems Solving **Credit Hours: 3.0**
- ENGL 1304 - First Year Writing II **Credit Hours: 3.0**
- HIST 1378 - The United States Since 1877 **Credit Hours: 3.0** ¹
- MATH 1432 - Calculus II **Credit Hours: 4.0**
- PHYS 1321 - University Physics I **Credit Hours: 3.0**
- PHYS 1121 - Physics Laboratory I **Credit Hours: 1.0**

Total 17

Second Year

Fall Semester

- ECE 2100 - Circuit Analysis Laboratory **Credit Hours: 1.0**
- ECE 2300 - Circuit Analysis **Credit Hours: 3.0**
- MATH 2433 - Calculus III **Credit Hours: 4.0**
- MATH 3321 - Engineering Mathematics **Credit Hours: 3.0**
- PHYS 1322 - University Physics II **Credit Hours: 3.0**
- PHYS 1122 – Physics Lab II **Credit Hours: 1.0**
- POLS 1336 - US and Texas Constitutions and Politics **Credit Hours: 3.0** ¹

Total 18

Spring Semester

- ECE 4436 - Microprocessor Systems **Credit Hours: 4.0**
- ECE 3331 - Programming Applications in Electrical and Computer Engineering **Credit Hours: 3.0**
- ECE 3337 - Signals and Systems Analysis **Credit Hours: 3.0**
- ENGI 2304 - Technical Communications **Credit Hours: 3.0**
- Visual and Performing Arts Core Course **Credit Hours: 3.0**

Total 16

Third Year

Fall Semester

- COSC 1320 - Introduction to Computer Science II **Credit Hours: 3.0**
- ECE 3155 - Electronics Laboratory **Credit Hours: 1.0**
- ECE 3355 - Electronics **Credit Hours: 3.0**
- ECE 3441 - Digital Logic Design **Credit Hours: 4.0**
- ECE 3317 – Applied Electromagnetic Waves **Credit Hours: 3.0**
- Visual and Performing Arts Core Course **Credit Hours: 3.0**

Total 17

Spring Semester

- COSC 2320 - Data Structures **Credit Hours: 3.0**
- ECE 3457 – Digital Electronics **Credit Hours: 4.0**
- Approved CpE Elective and Lab **Credit Hours: 4.0**¹⁰
- INDE 2333 – Engineering Statistics I **Credit Hours: 3.0**
- MATH 3336 – Discrete Mathematics **Credit Hours: 3.0**

Total 17

Fourth Year

Fall Semester

- COSC 4351 - Fundamentals of Software Engineering **Credit Hours: 3.0**
- ECE 4335 - Electrical and Computer Engineering Design I **Credit Hours: 3.0**
- ECE 5367 - Introduction to Computer Architecture and Design **Credit Hours: 3.0**
- Approved CpE Elective and Lab **Credit Hours: 4.0**¹⁰
- ECON 2304 – Microeconomic Principles **Credit Hours: 3.0**

Total 16

Spring Semester

- POLS 1337 - U.S. Government: Congress, President, and Courts **Credit Hours: 3.0**¹
- ECE 4336 - Electrical and Computer Engineering Design II **Credit Hours: 3.0**
- ECE Elective **Credit Hours: 3.0**¹⁰
- ECE/COSC Elective **Credit Hours 3.0**¹⁰

Total 12

Degree Total: 129

The text below the line that follows this sentence will be added to the ECE Department Website to explain the various program electives that must be chosen by students in the BSCpE Program. It will not appear in the Catalog, but is included here to clarify our proposal changes.

BSCpE Program Electives

The BSCpE Degree Plan calls for 2 *Approved CpE Elective and Lab* courses, one *ECE Elective*, and 1 *ECE/COSC Elective*. The meaning of each of these electives is described below.

Approved CpE Elective and Lab The *Approved CpE Elective and Lab* courses are chosen from the following list.

ECE 4437
ECE 5436
ECE 5440

ECE Elective The *ECE elective* can be any 3-, 4-, or 5000 level ECE course. A 6000-level course may be taken with departmental approval.

ECE/COSC Electives Students choose one course that may either be another ECE elective, or an approved COSC course. The approved COSC courses are the following.

COSC 3340
COSC 3380
COSC 4330

As part of the re-structuring of the BSEE and BSCpE undergraduate curricula, we propose changes to the Engineering Footnotes page as indicated below. Footnotes 9 and 10 will change, and footnote 14 will be deleted. All other footnotes remain the same.

Engineering Footnotes

College: Cullen College of Engineering

1 Refer to the [University of Houston Admissions website](#) for information on equivalents and substitutions and for information on advanced placement examinations.

2 Students not qualified to enter [MATH 1431](#) must complete [MATH 1300](#), [MATH 1310](#) and/or [MATH 1330](#), as indicated by results of the Mathematics placement examination, prior to enrolling in [MATH 1431](#).

3 Students must complete successfully one chemistry elective, two technical electives and one science elective chosen from a list published by the Department of Chemical Engineering twice a year. These electives must be chosen from within one of the following six specialties: Process Engineering, Biotechnology, Electronic Materials, Process Control, Environmental Engineering and Petroleum Engineering. Students must also complete successfully either Biochemical Engineering or Materials Science & Engineering II.

4 This degree may require three additional semester hours. Note the graphics requirement described under this department section.

5 Taught fall semesters only. To be taken during the first fall semester of enrollment in the Civil and Environmental Engineering Department.

6 [CIVE 4312](#) should generally be taken during the last year of enrollment (registration) before graduation. The prerequisites for [CIVE 4312](#) are listed in the catalog; the prerequisites are different in the fall and spring semesters. In the fall semester [CIVE 4312](#) is structures based while the spring course is water resources/environmental based.

7 Students must complete three electives chosen from any CIVE [4000-](#) or [5000-level](#) courses, with the approval of the undergraduate advisor. CIVE [6000-level](#) or appropriate courses outside CIVE may be considered.

8 A list of approved Technical Communication courses will be available in the department and posted on the departmental Web site.

~~9 Approved ECE or COSC elective: Any ECE course at the [3000-level](#) or above, except [ECE 3336](#), or choice of [COSC 3380](#), [COSC 3340](#), or any [4000-level](#) COSC course.~~

9 Electives in the BSEE Degree Program are described on the ECE Department website.

~~10 ECE elective/lab: Any ECE course with associated lab at the [3000-level](#) or above, except [ECE 3336](#).~~

10 Electives in the BSCpE Degree Program are described on the ECE Department website.

11 Approved technical courses are [MATH 3336](#), [MATH 3333](#), [MANA 3335](#), [MIS 3370](#), [INDE 4388](#), and [INDE 5397](#). Other technical courses must be approved in advance by the Industrial Engineering departmental advisor.

12 Electives can be chosen from any MECE 5000 -level course, or upon approval of the department, a MECE 6000 -level course or an appropriate course outside of MECE.

13 Electives can be chosen from any BIOE 5000 -level course, with the approval of the undergraduate advisor. BIOE 6000 -level course, or an appropriate course outside of BIOE may be considered.

~~14 Approved CPE elective: The current list of approved CPE electives is available in the department and posted on the web: www.ee.uh.edu/undergraduate/curriculum-flowcharts.~~