# BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

## WHAT IS COMPUTER ENGINEERING?

Computer engineering combines electrical engineering and computer science. It is about the interface between machines (hardware) and computers (software). Electrical engineers and computer engineers do both things, but computer engineers are more involved with software than electrical engineers. Computer engineers design and maintain hardware and software in computer-based systems, from PCs to supercomputers, as well as computer systems that are embedded in vehicles, appliances and communication networks. Specialized areas within computer engineering include system architecture, computer chip design, layout design, package/board design and system integration.

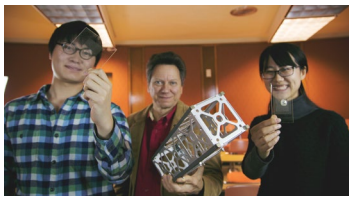
## CAREERS IN COMPUTER ENGINEERING

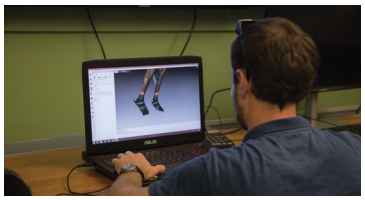
Career opportunities for computer engineers are excellent across all specialties. A 2022 salary survey produced by Payscale.com found that computer engineering graduates earned an average base salary of $88,896. Computers are used increasingly to control electronic and mechanical hardware, so these students are held in high regard by local and international companies. Our students work for a diverse group of companies including Hewlett Packard, Schlumberger and CenterPoint Energy, as well as for petrochemical, construction and telecommunication companies.

## WHY EARN YOUR ELECTRICAL & COMPUTER ENGINEERING DEGREE AT THE UNIVERSITY OF HOUSTON?

### ACADEMICS

Faculty and staff in the electrical and computer engineering department at the UH Cullen College of Engineering take pride in their commitment to undergraduate education. Students are treated as individuals and have access to faculty advisors throughout their undergraduate career. Small classes are the rule, especially at the junior and senior level. From the introductory level to the more advanced courses, teaching is done primarily by full-time faculty members, many of whom have received prestigious teaching awards. Students will receive real-world, hands-on training in the field to introduce them to electrical and computer engineering in an exciting and relevant way. In the senior design courses, students work on real-world problems with faculty and industry engineers guiding them. For those desiring additional learning opportunities, special workshops are available in some of the required freshman and sophomore courses.
Learn more at www.ece.uh.edu/undergraduate/general-information





### RESEARCH

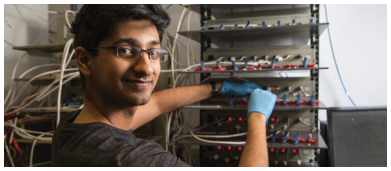
The electrical and computer engineering department provides numerous opportunities to undergraduate students interested in doing research. Many professors hire students to work in their labs, and the university offers stipends on a competitive basis for both summer and regular semester research projects. There is an amazing array of research going on inside of the department's labs, so students can get exposure to cutting-edge technologies and research tools.
Learn more at www.ece.uh.edu/research/undergraduate

### SCHOLARSHIPS

Many scholarships are available to incoming and current undergraduate students in the electrical and computer engineering department. Some are administered by the Office of Scholarships and Financial Aid and are open to all University of Houston students. The Cullen College of Engineering also offers merit-based scholarships. Additionally, the university's co-op program allows students to receive career training while financing their education.
Learn more at www.ece.uh.edu/undergraduate/scholarships-careers

### STUDENT ORGANIZATIONS

Electrical and computer engineering students at UH like to get involved! We encourage you to join academic and professional organizations like the student chapter of the Institute of Electrical and Electronics Engineers (IEEE), Society of Women Engineers (SWE), National Society of Black Engineers (NSBE) and many others. Student organizations help you build leadership, communication and networking skills. Members of student organizations receive career guidance from engineering professionals and participate in activities that promote engineering. IEEE events include the Region 5 Robotics Competition and the annual IEEE Chili Cook-Off.
Learn more at www.ece.uh.edu/people/students



### ECE FAST FACTS

**720** Total Undergrad Students in Program
**208** Total Faculty in Cullen College
**$88,896** Average Salary
**21:1** Student-to-Faculty Ratio Across the University

Cullen College of Engineering
UNIVERSITY OF HOUSTON

# BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

# ILLUSTRATIVE FOUR-YEAR ACADEMIC PLAN

## YEAR 1

| SEMESTER 1 | | | SEMESTER 2 | | | Total |
|---|---|---|---|---|---|---|
| CHEM 1111 | Fundamentals of Chemistry Lab | 1 | ENGI 1331 | Computing for Engineers | 3 | |
| CHEM 1311 | Fundamentals of Chemistry* | 3 | ENGL 1302 | First Year Writing II* | 3 | |
| ENGI 1100 | Introduction to Engineering | 1 | HIST 1302 | The United States Since 1877* | 3 | |
| ENGL 1301 | First Year Writing I* | 3 | MATH 2414 | Calculus II* | 4 | |
| HIST 1301 | The United States to 1877* | 3 | PHYS 2325 | University Physics I* | 3 | |
| MATH 2413 | Calculus I* | 4 | PHYS 2125 | University Physics Laboratory I | 1 | |
| | **Semester Hours** | **15** | | **Semester Hours** | **17** | **32** |

## YEAR 2

| SEMESTER 1 | | | SEMESTER 2 | | | |
|---|---|---|---|---|---|---|
| ECE 2201 | Circuit Analysis I | 2 | ENGI 2304 | Technical Communications* | 3 | |
| MATH 2415 | Calculus III | 4 | ECE 2202 | Circuit Analysis II | 2 | |
| MATH 3321 | Engineering Mathematics | 3 | ECE 2100 | Circuit Analysis Laboratory | 1 | |
| PHYS 2326 | University Physics II | 3 | ECE 3331 | Programming Applications in ECE | 3 | |
| PHYS 2126 | University Physics Laboratory II | 1 | ECE 3441 | Digital Logic Design | 4 | |
| GOVT 2306 | U.S. & TX Constitution/Politics* | 3 | CORE | Creative Arts* | 3 | |
| | **Semester Hours** | **16** | | **Semester Hours** | **16** | **32** |

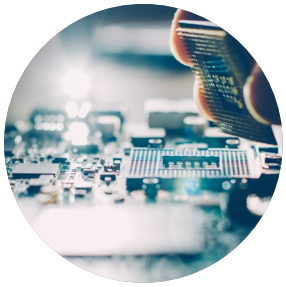
## YEAR 3

| SEMESTER 1 | | | SEMESTER 2 | | | |
|---|---|---|---|---|---|---|
| COSC 1437 | Intro to Programming | 4 | COSC 2436 | Programming & Data Structures | 4 | |
| ECE 3155 | Electronics Lab | 1 | ECE 3457 | Digital Electronics | 4 | |
| ECE 3355 | Electronics | 3 | CpE Elect/Lab | Approved CpE Elective and Lab | 4 | |
| ECE 3436 | Microprocessors | 4 | INDE 2333 | Engineering Statistics I | 3 | |
| ECE 3337 | Signal & System Analysis | 3 | | | | |
| ECE 3317 | Applied EM Waves | 3 | | | | |
| | **Semester Hours** | **18** | | **Semester Hours** | **15** | **33** |

## YEAR 4

| SEMESTER 1 | | | SEMESTER 2 | | | |
|---|---|---|---|---|---|---|
| MATH 3336 | Discrete Mathematics | 3 | GOVT 2305 | U.S. Government* | 3 | |
| ECE 4335 | ECE Design I | 3 | ECE 4336 | ECE Design II | 3 | |
| ECE 5367 | Intro to Comp Architecture Design | 3 | CpE Elect/Lab | CpE Elective and Lab | 4 | |
| CpE ELEC/Lab | Approved CpE Elective and Lab | 4 | COSC 4351 | Fundamentals of Software Engr | 3 | |
| ECON 2302 | Principles of Microeconomics* | 3 | CORE | Language, Philosophy & Culture | 3 | |
| | **Semester Hours** | **16** | | **Semester Hours** | **16** | **32** |
| | | | | **TOTAL SEMESTER HOURS** | | **129** |

After completing the ECE base, students in the BSCpE program must take courses in digital electronics, digital design and computer architecture. In the department of computer science, students have to take courses in advanced programming, data structures and software engineering. They also have to choose from an approved list of computer engineering electives courses in Advanced Microprocessors, Advanced Digital Design, and Embedded Systems, and they have to take one ECE elective and a second ECE or COSC elective.



**Students should meet with their academic advisor to formulate their own plan. Course offerings are subject to change.*

# FOR MORE INFORMATION

Get in touch with us and schedule a virtual or in person meeting: https://www.egr.uh.edu/academics/undergraduate-programs
UH Department of Electrical and Computer Engineering: www.ece.uh.edu
Undergraduate Program: www.ece.uh.edu/undergraduate/general-information | Email: ECEugrad@central.uh.edu

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