

# COMPUTER ENGINEERING

BACHELOR OF SCIENCE

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE



## 4-YEAR ADVISING SCHEME

Students seeking the Bachelor of Science in Computer Engineering must complete a minimum of 120 credit hours comprised of core courses in computer engineering (56 credits), science and mathematics courses (46 credits), and general curriculum courses (18 credits), including an African American Studies elective (3 credits).

### FALL SEMESTER 1

| Number        | Course Title                | Credits |
|---------------|-----------------------------|---------|
| MATH 156      | Calculus I                  | 4       |
| EGPP 101      | Intro to Engineering        | 2       |
| CSCI 135      | Computer Science I          | 4       |
| CHEM 003      | General Chemistry I Lecture | 4       |
| CHEM 005      | General Chemistry I Lab     | 1       |
| Total Credits |                             | 15      |

### SPRING SEMESTER 1

| Number        | Course Title                                | Credits |
|---------------|---------------------------------------------|---------|
| MATH 157      | Calculus II                                 | 4       |
| EECE 102      | Intro to Electrical & Computer Engineering  | 1       |
| EECE 260      | Engineering Programming and Application     | 3       |
| PHYS 013      | Physics I Lecture (Science and Engineering) | 3       |
| PHYS 023      | Physics I Lab (Science and Engineering)     | 1       |
| --            | African American Studies Elective           | 3       |
| Total Credits |                                             | 15      |

### FALL SEMESTER 2

| Number        | Course Title                                 | Credits |
|---------------|----------------------------------------------|---------|
| MATH 158      | Calculus III                                 | 4       |
| PHYS 014      | Physics II Lecture (Science and Engineering) | 3       |
| PHYS 024      | Physics II Lab (Science and Engineering)     | 1       |
| EECE 212      | Fundamentals of Digital Systems              | 4       |
| EECE 218      | Fundamentals of Digital Systems Lab          | 1       |
| MATH 159      | Differential Equations                       | 4       |
| Total Credits |                                              | 17      |

### SPRING SEMESTER 2

| Number        | Course Title                        | Credits |
|---------------|-------------------------------------|---------|
| EECE 160      | Engineering Mathematics             | 4       |
| EECE 203      | Fundamentals of Circuit Theory      | 4       |
| EECE 209      | Fundamentals of Circuit Theory Lab  | 1       |
| EECE 406      | Advanced Digital Systems Design     | 3       |
| EECE 412      | Advanced Digital Systems Design Lab | 1       |
| Total Credits |                                     | 13      |

### FALL SEMESTER 3

| Number        | Course Title                             | Credits |
|---------------|------------------------------------------|---------|
| EECE 305      | Fundamentals of Electromagnetics         | 4       |
| EECE 306      | Fundamentals of Electromagnetics Lab     | 1       |
| EECE 309      | Fun of Electronics and SS Devices        | 4       |
| EECE 312      | Fund of Electronics and SS Devices Lab   | 1       |
| EECE 331      | Probability and Statistics for Eng. Appl | 3       |
| ENGW ---      | English First-Year Writing (1)           | 3       |
| Total Credits |                                          | 16      |

### SPRING SEMESTER 3

| Number        | Course Title                        | Credits |
|---------------|-------------------------------------|---------|
| EECE 333      | Fundamentals of Signals and Systems | 4       |
| --            | Social Science Elective             | 3       |
| EECE 410      | Intro to Computer Networks          | 3       |
| MATH 181      | Discrete Structures                 | 3       |
| ENGW ---      | English First-Year Writing (2)      | 3       |
| Total Credits |                                     | 16      |

### FALL SEMESTER 4

| Number        | Course Title                    | Credits |
|---------------|---------------------------------|---------|
| --            | CpE Elective                    | 3       |
| EECE 420      | Introduction to VLSI Design     | 3       |
| EECE 424      | Introduction to VLSI Design Lab | 1       |
| EECE 401      | Senior Design I                 | 3       |
| EECE 416      | Microcomputer Design            | 3       |
| Total Credits |                                 | 13      |

### SPRING SEMESTER 4

| Number        | Course Title                   | Credits |
|---------------|--------------------------------|---------|
| EECE 417      | Computer System Architecture I | 3       |
| --            | Humanities Elective            | 3       |
| --            | Math/Science Elective          | 3       |
| EECE 404      | Senior Design II               | 3       |
| ECON 001      | Principles of Economics        | 3       |
| Total Credits |                                | 15      |

**Total Credits: 120**

#### More Information :

The 4-Year Advising Scheme is a guide for students to successfully complete the program in four years of study. It is not a substitution for academic advising. Students are expected to check-in with their academic advisor every semester.

The prerequisite structure for courses and technical elective options are available in the program handbook.

Courses may not be offered in semesters in which they do not appear listed on the scheme.

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Lewis K. Downing Hall, 2300 Sixth Street, NW, Suite 1016, Washington, DC 20059

Phone: 202.806.6565

Email: [eeecs@howard.edu](mailto:eeecs@howard.edu)

[www.cea.howard.edu](http://www.cea.howard.edu)

# COMPUTER ENGINEERING

BACHELOR OF SCIENCE

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Curriculum 2026 - 2027

## PREREQUISITES

Some courses in the curriculum have prerequisites that must be satisfied before being permitted to enroll in that course. Below are courses within the Architecture curriculum that have a prerequisite. Contact your academic advisor to address prerequisite error messages that may appear when registering for a course.

### CORE COURSES

| Course Number/ Title /Credits                             | Prerequisite / Co-requisite               |
|-----------------------------------------------------------|-------------------------------------------|
| EECE 102 Intro to Electrical & Computer Engineering (1)   | EGPP 101 (2)                              |
| EECE 160 Engineering Mathematics (4)                      | MATH 158 (4)                              |
| EECE 203 Fundamentals of Circuit Theory (4)               | PHYS 014 (3), PHYS 024 (1) / EECE 209 (1) |
| EECE 209 Fundamentals of Circuit Theory Lab (1)           | PHYS 014 (3), PHYS 024 (1)/ EECE 203 (4)  |
| EECE 212 Fundamentals of Digital Systems (4)              | -- / EECE 218 (1)                         |
| EECE 218 Fundamentals of Digital Systems Lab (1)          | -- / EECE 212 (4)                         |
| EECE 260 Engineering Programming & Application (3)        | CSCI 135(3)                               |
| EECE 305 Fundamentals of Electromagnetics (4)             | MATH 158 (4) / EECE 306 (1)               |
| EECE 306 Fundamentals of Electromagnetics Lab (1)         | -- / EECE 305 (4)                         |
| EECE 309 Fundamentals of Electronics & SS Devices (4)     | EECE 203 (4) / EECE 312 (1)               |
| EECE 312 Fundamentals of Electronics & SS Devices Lab (1) | EECE 209 (1) / EECE 309 (4)               |
| EECE 331 Prob & Stats for Engineers Applications (3)      | MATH 157 (4)                              |
| EECE 333 Fundamentals of Signals & Systems (4)            | MATH 158 (4)                              |
| EECE 401 Senior Design I (3)                              | Senior Standing                           |
| EECE 404 Senior Design II (3)                             | EECE 401 (3)                              |
| EECE 406 Advanced Digital Systems Design (3)              | EECE 212 (4) / EECE 412 (1)               |
| EECE 412 Advanced Digital Systems Design Lab (1)          | -- / EECE 406 (3)                         |
| EECE 416 Microcomputer Design (3)                         | EECE 212 (4)                              |
| EECE 420 Introduction to VLSI Design (3)                  | EECE 212 (4) / EECE 423 (1)               |
| EECE 423 Introduction to VLSI Design lab (1)              | -- / EECE 420 (3)                         |

### MATH COURSES

| Course Number/Title/Credits         | Prerequisite                      |
|-------------------------------------|-----------------------------------|
| MATH 156 Calculus I (4)             | Math 007, or Math Placement Score |
| MATH 157 Calculus II (4)            | Math 156 (4)                      |
| MATH 158 Calculus III (4)           | Math 157 (4)                      |
| MATH 159 Differential Equations (4) | Math 157 (4)                      |
| MATH 181 Discrete Structures (3)    | Math 157 (4)                      |

### ENGLISH COURSES

| Course Number/Title/Credits                 | Prerequisite                                                     |
|---------------------------------------------|------------------------------------------------------------------|
| ENGW 102/104 English First-Year Writing (3) | English Placement Score or ACTE/SATW                             |
| ENGW 103/105 English First-Year Writing (3) | "C" or better in ENGW 101/102/104 English First-Year Writing (3) |

### SCIENCE COURSES

| Course Number/Title/Credits                              | Prerequisite                |
|----------------------------------------------------------|-----------------------------|
| PHYS 013 General Physics for Sci and Eng Students I (3)  | -- / Math 156 (4)           |
| PHYS 014 General Physics for Sci and Eng Students II (1) | PHYS 013 (3) / Math 157 (4) |

### COMPUTER SCIENCE COURSES

| Course Number/Title/Credits          | Prerequisite |
|--------------------------------------|--------------|
| CSCI 201 Computer Organization I (3) | CSCI 135 (4) |