# B.S. in Computer Engineering

(120 credit minimum)

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### Fourth Year

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### CoOp Option A Track

(145 credits minimum)

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**Term Credits**: 16

### 2nd Semester

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**Term Credits**: 15

### Summer

**CO-OP I**

**Term Credits**: 0

### Third Year

#### 1st Semester

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**Term Credits**: 12

#### 2nd Semester

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**Term Credits**: 14

### Summer

**CO-OP II**

**Term Credits**: 0

### Fourth Year

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**Term Credits**: 16

### Fifth Year

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### B.S. in Computer Engineering

**COE Track Elective II**
3

**Technical Elective**
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**History and Humanities GER 300+ level** (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level)
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### CoOp Option B Track

(145 credits minimum)

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| 2nd Semester |
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| MATH 112 | Calculus II | 4 |
| PHYS 122 | Electricity & Magntsm ECE Appl | 3 |
| PHYS 121A | Physics II Lab | 1 |
| ECE 101 | Introduction to Electrical and Computer Engineering | 0 |
| HUM 102 | English Composition: Writing, Speaking, Thinking II | 3 |
| Term Credits | 14 |

| Second Year |
| 1st Semester |
| CS 116 | Introduction to Computer Science II in C++ | 3 |
| ECE 231 | Circuits and Systems I | 3 |
| ECE 251 | Digital Design | 3 |
| MATH 222 | Differential Equations | 4 |
| History and Humanities GER 200 level | 3 |
| Term Credits | 16 |

<p>| 2nd Semester |
| ECE 232 | Circuits and Systems II | 3 |
| ECE 252 | Microprocessors | 3 |
| ECE 271 | Electronic Circuits I | 3 |
| ECE 291 | Electrical Engineering Laboratory I | 1 |</p>
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<td>Computer Organization and Architecture</td>
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<td>ECE 394</td>
<td>Digital Systems Lab</td>
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<tr>
<td>PHIL 334</td>
<td>Engineering Ethics and Technological Practice: Philosophical Perspectives on Engineering</td>
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<td>IE 492</td>
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<td>ENGR 410</td>
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<td>ECE 416</td>
<td>Electrical and Computer Engineering Project II</td>
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<td>or ECE 417</td>
<td>Electrical &amp; Computer Engineering Project II</td>
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<td>Technical Elective</td>
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</table>
**Computer Engineering Tracks**

The computer engineering technical tracks are designed to provide in-depth study in a specialty area. Students at the fourth year of the curriculum must choose one of the available tracks. Courses are listed below. Students may take alternative courses but must see their academic advisor for approval.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Computer Engineering Tracks - Select one of the following:</td>
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<tr>
<td></td>
<td>1. Advanced Computer Systems Track</td>
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<tr>
<td>ECE 451</td>
<td>Advanced Computer Architecture</td>
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<tr>
<td>ECE 452</td>
<td>Advanced Computer Architecture II</td>
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<td>ECE 453</td>
<td>Introduction to Discrete Event Systems</td>
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<td>or IS 461</td>
<td>Systems Simulation</td>
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<td>ECE 459</td>
<td>Advanced Computer Systems Design Lab</td>
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<td>2. Computer Communications Track</td>
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<td>ECE 421</td>
<td>Digital Data Communication</td>
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<td>ECE 422</td>
<td>Computer Communications Networks</td>
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<td>ECE 425</td>
<td>Wireless Communication Systems</td>
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<td>ECE 429</td>
<td>Computer Communications Lab</td>
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<td>Computer Engineering Technical Electives - 3 courses</td>
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<td>The ECE Elective must be a 300 or 400 level ECE course or an advisor approved upper level engineering, science or mathematics course. Elective courses cannot cover the same material as other courses taken by the student. For example, a CS course covering the same material as an ECE course taken by the student cannot count as a technical elective. Courses from the Engineering Technology Department are generally not approved as ECE electives.</td>
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<tr>
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<td>Co-op</td>
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<td>Co-op courses bearing degree credit replace a technical elective or another course approved by the faculty advisor in the student's major department. In Computer Engineering, ECE 310 Co-op Work Experience I is taken for zero credits, and ECE 410 Co-op Work Experience II is taken for 3 degree credits, upon acceptance by the faculty co-op advisor of an approved proposal.</td>
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<td>Refer to the General Education Requirements (<a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements</a>) section of this catalog for further information on electives.</td>
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</table>

This curriculum represents the maximum number of credits per semester for which a student is advised to register. A full-time credit load is 12 credits. First-year students are placed in a curriculum that positions them for success which may result in additional time needed to complete curriculum requirements. Continuing students should consult with their academic advisor to determine the appropriate credit load.