Course Tracks for **Computer Engineering & Computer Science**

The Computer Engineering & Computer Science program (CECS) trains students to integrate hardware and software processes to design solutions to problems arising in complex domains such as atomic reactors, guidance systems and manufacturing systems. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

### Computer Engineering & Computer Science (Embedded Systems) — Begin with CS 103

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<tr>
<th>FIRST YEAR</th>
<th>SECOND YEAR</th>
<th>THIRD YEAR</th>
<th>FOURTH YEAR</th>
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<td>FALL</td>
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<tr>
<td>WRIT 150</td>
<td>Phys 150L</td>
<td>EE 202</td>
<td>GE B</td>
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<tr>
<td>MATH 125</td>
<td>Phys 152L</td>
<td>EE 364</td>
<td>TECHNICAL ELECTIVE I</td>
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<tr>
<td>(GE F)*</td>
<td>MATH 126 or</td>
<td>Math 225 or</td>
<td>MATH 407</td>
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<tr>
<td>MATH 129*</td>
<td>MATH 224</td>
<td>MATH 235</td>
<td>Math 226</td>
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<tr>
<td>(MATH 125)</td>
<td>or 129</td>
<td>MATH 127</td>
<td>or Math 226</td>
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<tr>
<td>CSCI 170</td>
<td>GE A*</td>
<td>EE 250</td>
<td>EE 354</td>
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<tr>
<td>CSCI 102</td>
<td>CSCI 170L</td>
<td>EE 109L</td>
<td>Ge D*</td>
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<tr>
<td>ENGR 102</td>
<td>(CSCI 102)</td>
<td>EE 109L</td>
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### Computer Engineering & Computer Science (Embedded Systems) — Begin with CS 102

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<tr>
<td>FALL</td>
<td>SPRING</td>
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<tr>
<td>GE A</td>
<td>CSCI 170</td>
<td>Phys 150L*</td>
<td>GE D*</td>
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<tr>
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<td>CSCI 103</td>
<td>Math 152</td>
<td>Math 153</td>
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<tr>
<td>(GE F)*</td>
<td>CSCI 102</td>
<td>Math 126</td>
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<td>GESM</td>
<td>CSCI 104L</td>
<td>Math 129</td>
<td>Math 129</td>
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<td>(GE C)#</td>
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<td>CSCI 102</td>
<td>EE 109L</td>
<td>MATH 225</td>
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<td>ENGR 102</td>
<td>OPTIONAL ELECTIVE</td>
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**Disclaimer:** The contents of the page may include information that is outdated or no longer applicable. Always consult the most current source for the latest information.
### Computer Science Business Administration

**General Education Seminar (1 Course)**
- GE G,H: Global Perspectives (2 Courses)

**Quantitative Reasoning (1 Course)**
- GE E: Physical Sciences (1 Course)

**Physics (1 Course)**
- PHYS 172: Applied Physics II: Electricity, Magnetism and Optics

**Humanistic Inquiry (2 Courses)**
- GE A: The Arts (1 Course)

**Mathematics (12 Units)**
- MATH 125: Calculus I*
- MATH 126 or MATH 129: Calculus II*
- MATH 225: Linear Algebra & Diff. Equations
- MATH 235: Linear Algebra & Applications
- EE 141: Applied Linear Algebra for Engineering Science

**Statistics & Probability (4 Units)**
- BUAD 310: Applied Business Statistics
- BUAD 312: Statistics and Data Science for Business
- or EE 364: Intro to Probability & Statistics
- or MATH 407: Probability Theory

**Science Courses (4 Units)**
- PHYS 151L*, CHEM 105aL* or BISC 120L*

**General Education (32 Units)**
- GE A: The Arts (1 Course)*
- GE B: Humanistic Inquiry (2 Courses)
- GE C: Social Analysis (2 Courses)
- GE D: Life Sciences (1 Course)*
- GE E: Physical Sciences (1 Course)*
- GE F: Quantitative Reasoning (1 Course)*
- GE G,H: Global Perspectives (2 Courses)*
- GESM: General Education Seminar (1 Course)

**Writing (1 Units)**
- WRIT 150: Writing and Critical Reasoning
- WRIT 340: Advanced Writing

**Business & Economics (36 Units)**
- ACCT 410X: Accounting for Non-Business Majors
- BUAD 302: Communication Strategy in Business
- BUAD 304: Organizational Behavior
- BUAD 306: Business Finance
- BUAD 307: Marketing Fundamentals
- BUAD 311: Operations Management
- or BUAD 313: Advanced Operations Management & Analytics

**Engineering (3 Units)**
- PHYS 152L: Electricity and Magnetism*
- PHYS 151L: Mechanics and Thermodynamics*
- PHYS 152L: Electricity and Magnetism*
- PHYS 161: Advanced Principles of Physics I
- PHYS 162: Advanced Principles of Physics II
- PHYS 171: Applied Physics I: Mechanics
- PHYS 172: Applied Physics II: Electricity, Magnetism and Optics

**Writing (8 Units)**
- WRIT 150: Writing and Critical Reasoning
- WRIT 340: Advanced Writing

**Engineering (64 Units)**
- PHYS 172: Applied Physics II: Electricity, Magnetism and Optics
- PHYS 162: Advanced Principles of Physics II
- PHYS 171: Applied Physics I: Mechanics

**Electives (9-12 Units)**
- CSCI/BUSINESS ELECTIVES: See advisor for current list. Students must take one course from the Computer Science listings, one from the Business listings, and a third course from either one.

**Special Notes**
- Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.
- GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

**Grade Qualifier:** A grade of C- or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

### Computer Engineering & Computer Science (Embedded Systems)

**Mathematics (16 Units)**
- MATH 125: Calculus I*
- MATH 126 or 129: Calculus II*
- MATH 225: Linear Algebra & Diff. Equations
- MATH 235: Linear Algebra & Applications

**Statistics and Probability (4 Units)**
- EE 364: Intro to Probability & Statistics
- MATH 407: Probability Theory

**Physics (8 Units)**
- PHYS 151L: Mechanics and Thermodynamics*
- PHYS 152L: Electricity and Magnetism*
- PHYS 161: Advanced Principles of Physics I
- PHYS 162: Advanced Principles of Physics II

**General Education (32 Units)**
- GE A: The Arts (1 Course)*
- GE B: Humanistic Inquiry (2 Courses)
- GE C: Social Analysis (2 Courses)
- GE D: Life Sciences (1 Course)*
- GE E: Physical Sciences (1 Course)*
- GE F: Quantitative Reasoning (1 Course)*
- GE G,H: Global Perspectives (2 Courses)*
- GESM: General Education Seminar (1 Course)

**Writing (8 Units)**
- WRIT 150: Writing and Critical Reasoning
- WRIT 340: Advanced Writing

**Engineering (64 Units)**
- CSCI 102: Fundamentals of Computation
- CSCI 103L: Introduction to Programming
- CSCI 104L: Data Structures & Obj. Orient. Design
- CSCI 170: Discrete Methods in Comp. Science
- CSCI 201L: Princ. of Software Development
- CSCI 270: Intro. to Algorithms & Theory of Comp.
- CSCI 310: Intro. to Software Engineering
- CSCI 401: Capstone: Design & Construction of Large Software Systems
- or CSCI 404: Capstone: Creating Your High-Tech Startup
- PHYS 172: Applied Physics II: Electricity, Magnetism and Optics

**Special Notes**
- Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.
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**Senior Design Project:** EE 459L.

**Technical Electives:** See approved tech elective list on CS webpage.