ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

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Electrical Engineering and Computer Science is an interdepartmental major designed for students who want to integrate work in these two fields. It covers discrete and continuous mathematics, algorithm analysis and design, digital and analog circuits, signals and systems, systems programming, and computer engineering. It provides coherence in its core program, but allows flexibility to pursue technical electives.

PREREQUISITES
The prerequisites for the major are MATH 112, 115 (these prerequisites may be waived for students who have taken the equivalent of one year of calculus in high school) and ENAS 151 or MATH 120 (or a higher-level course); CPSC 112 (for students without previous programming experience); and PHYS 180 and 181, or PHYS 200 and 201. PHYS 170, 171 are acceptable for students taking MATH 112. Acceleration credits may not be used to satisfy prerequisites, and because the B.S. programs in Electrical Engineering and in Engineering Sciences (Electrical) both limit the use of such credits, students who wish to retain the option of switching to these programs should consult the director of undergraduate studies (DUS) in Electrical Engineering when planning their course schedules.

REQUIREMENTS OF THE MAJOR
The major requires fifteen term courses beyond the prerequisites:
CPSC 201; 202; 223; 323; and either CPSC 365 or 366; EENG 200, 201, 202, and 203; one from MATH 222, 225, 226, S&DS 238, or S&DS 241; four advanced electives, two in electrical engineering, two in computer science; and a senior project. MATH 244 may be substituted for CPSC 202. Electives must be 300- or 400-level courses in the departments of Electrical Engineering or Computer Science or must be approved by the DUSs of both departments. Cross-titled courses may be counted either way to fulfill this requirement. CPSC 290 and 490 may not be used as electives. Only one of CPSC 365 and 366 may be taken for major credit. With permission of the DUSs of both departments, one of EENG 468 or 469 may be used as an electrical engineering elective.
For students who have taken the equivalent of one year of calculus in high school and have some programming experience, a typical program would be:

**First-Year** | **Sophomore** | **Junior** | **Senior**
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EENG 200 | CPSC 201 | CPSC 202 | Senior project
ENAS 151 | EENG 202 | CPSC 323 | One elective
PHYS 180 | | | |
EENG 201 | CPSC 223 | CPSC 365 or 366 | Two electives
PHYS 181 | EENG 203 | | One elective
| MATH 222 | | | |

Students with no programming experience should take CPSC 112 in the fall of their first year and either postpone EENG 200 until their sophomore year or take ENAS 151 or MATH 120 in the spring.

For students with one term of calculus and no programming experience, a typical program would be:

**First-Year** | **Sophomore** | **Junior** | **Senior**
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CPSC 112 | CPSC 201 | CPSC 202 | Two electives
MATH 115 | EENG 200 | CPSC 323 | |
PHYS 180 | EENG 202 | S&DS 241 | |
EENG 201 | CPSC 223 | CPSC 365 or 366 | Senior project
MATH 120 | EENG 203 | One elective | One elective
PHYS 181 | | | |

For students with no calculus and no programming experience, a typical program would be:

**First-Year** | **Sophomore** | **Junior** | **Senior**
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CPSC 112 | CPSC 201 | CPSC 202 | Two electives
MATH 112 | EENG 200 | CPSC 323 | |
PHYS 170 | ENAS 151 | EENG 202 | |
EENG 201 | CPSC 223 | CPSC 365 or 366 | Senior project
MATH 115 | MATH 222 | EENG 203 | One elective
PHYS 171 | | | |

Students who start with MATH 112 may satisfy the physics prerequisite by taking PHYS 170 and 171 in their first year, as shown in the table above. However, because the B.S. programs in Electrical Engineering and in Engineering Sciences (Electrical) do not allow this substitution, students who wish to retain the option of switching to these programs should postpone physics until their sophomore year.

**Credit/D/Fail** Courses taken Credit/D/Fail may not be counted toward the requirements of the major, including prerequisites.

**SENIOR REQUIREMENT**

The senior project must be completed in CPSC 490 or EENG 471 and/or 472, depending on the adviser’s department, and must be approved by the DUS in each department.
ADVISING AND APPROVAL OF PROGRAMS

The entire program of a student majoring in Electrical Engineering and Computer Science must be approved by the DUS in each department.

Accreditation Students interested in pursuing an ABET-accredited degree should consider the B.S. program in Electrical Engineering. See Electrical Engineering.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 112, 115, and ENAS 151 or MATH 120; CPSC 112 (students without previous programming experience); PHYS 180, 181, or PHYS 200, 201 with exceptions as indicated

Number of courses 15 term courses beyond prerequisites (including senior project)

Specific courses required CPSC 201, 202, 223, 323, and one of CPSC 365 or 366; EENG 200, 201, 202, and 203; one from MATH 222, 225, 226, S&DS 238 or 241

Distribution of courses 4 additional 300- or 400-level electives, 2 in electrical engineering, 2 in computer science

Substitution permitted MATH 244 for CPSC 202; advanced courses in other depts, with permission of DUS in each department

Senior requirement Independent project (CPSC 490 or EENG 471 and/or 472) approved by DUS in each department