ENGINEERING WITH A COMPUTER ENGINEERING SPECIALIZATION (BS)

Computer Engineers conceive and develop the next wave of computing advances, innovations, and devices that are used in modern computers and computer controlled systems. Our students learn how to design and integrate hardware and software that are used in computer equipment such as microelectronic chips, circuit boards and controllers, and in computer controlled systems such as computer networks, cyber physical systems, sensors and actuators, and smart grids.

### Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 351</td>
<td>Electronic Circuit Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 351L</td>
<td>Circuit Design Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ENGR 352</td>
<td>Methods and Algorithms for Computer Engineers</td>
<td>3</td>
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<tr>
<td>ENGR 353</td>
<td>Programmable Systems</td>
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<tr>
<td>ENGR 382</td>
<td>Computer Engineering Capstone Design I</td>
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<tr>
<td>ENGR 392</td>
<td>Computer Engineering Capstone Design II</td>
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### Suggested Sequence of Courses

#### Course Title Hours

**Freshman**

**Fall**

- ENGR 101 Introduction to Engineering Design 1 4
- MATH 161 Calculus I 2 4
- BIOL 101 General Biology I 2 3
- BIOL 111 General Biology I Lab 2 1
- PHYS 121 College Physics I Lec/Dis 2 3
- UNIV 101 First Year Seminar 3 1

**Spring**

- COMP 170 Introduction to Object-Oriented Programming 2 3
- MATH 162 Calculus II 2 4
- PHYS 122 College Physics II Lec/Dis 2 3
- PHYS 122L College Physics Lab II 1 1
- UCWR 110 Writing Responsibly 3 3
- LUC Core 3 3
- ENGR 102 Engineering Science Freshman Seminar 4 1

**Hours** 16

**Sophomore**

**Fall**

- ENGR 201 Experiential Engineering 1 3
- MATH 263 Multivariable Calculus 2 4
- CHEM 171 General Chemistry for Engineering Science Majors 2 3
- CHEM 173 General Chemistry Lab for Engineering Science Majors 2 1
- LUC Core 3 3

**Hours** 18

**Spring**

- ENGR 353 Programmable Systems 3 3
- ENGR 392 Computer Engineering Capstone Design II 3 3
- LUC Core 3 3

**Hours** 12

**Junior**

**Fall**

- ENGR 312 Engineering Systems II 5 3
- ENGR 322 Chemical & Thermal Processes 4 3
- ENGR 323 Digital Electronic & Computer Engineering 4 2
- ENGR 324 Mechanics 4 3
- ENGR 324L Core Engineering Lab 4 1
- LUC Core 3 3

**Hours** 15

**Spring**

- ENGR 313 Engineering Systems III 5 3
- ENGR 325 Materials Engineering 4 3
- ENGR 351 Electronic Circuit Analysis and Design 3
- ENGR 351L Circuit Design Laboratory 1
- STAT 203 Introduction to Probability & Statistics 2 3
- LUC Core 3 3

**Hours** 16

**Senior**

**Fall**

- ENGR 352 Methods and Algorithms for Computer Engineers 3
- ENGR 382 Computer Engineering Capstone Design I 4
- LUC Core 3 3
- LUC Core 3 3
- LUC Core 3 3

**Hours** 16

**Spring**

- ENGR 353 Programmable Systems 3 3
- ENGR 392 Computer Engineering Capstone Design II 3 3
- LUC Core 3 3
- LUC Core 3 3

**Hours** 12

**Total Hours** 127

1 Engineering Design
2 Math & Science Courses
3 LUC Core/Foreign Language
4 Engineering Core
5 Engineering Systems
6 Specialty Engineering Courses

Learn more at LUC.edu/engineering (https://www.luc.edu/engineering/)
College of Arts and Sciences Graduation Requirements

All undergraduate students in the College of Arts and Sciences are required to take two Writing Intensive courses (6 credit hours) as well as complete a foreign language requirement at 102-level or higher (3 credit hours) or a language competency test. More information can be found here (https://www.luc.edu/cas/college-requirements/).

Additional Undergraduate Graduation Requirements

All undergraduate students are required to complete the University Core, at least one Engaged Learning course, and UNIV 101. SCPS students are not required to take UNIV 101. You can find more information in the University Requirements (https://catalog.luc.edu/undergraduate/university-requirements/) area.

Learning Outcomes

Engineering - Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. Our students will possess:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering and mathematics.
2. An ability to apply engineering process to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.