# Computer Engineering Major
## Suggested Freshman Plan 2017-2018

**PLEASE NOTE:** All courses used to satisfy major requirements must be taken for a LETTER GRADE.

*ECE 108 must be replaced with an upper division CSE or ECE course that doesn’t satisfy any other requirement. Due to six different college requirements, only major requirements are listed. CSE 8AB is designed for students who do not have previous programming experience.*

<table>
<thead>
<tr>
<th></th>
<th>CSE8AB</th>
<th>CSE11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FALL</td>
<td>WINTER</td>
</tr>
<tr>
<td></td>
<td>MATH 20A</td>
<td>MATH 20B</td>
</tr>
<tr>
<td>Year 1</td>
<td>CSE 8A</td>
<td>CSE 8B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td>CSE 21</td>
<td>MATH 20D</td>
</tr>
<tr>
<td></td>
<td>CSE 30</td>
<td>CSE 100</td>
</tr>
<tr>
<td></td>
<td>ECE 35</td>
<td>ECE 45</td>
</tr>
<tr>
<td></td>
<td>PHYS 2B</td>
<td>PHYS 2C</td>
</tr>
<tr>
<td>Year 3</td>
<td>ECE 101</td>
<td>CSE 101</td>
</tr>
<tr>
<td></td>
<td>CSE 140/140L</td>
<td>CSE 141/141L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 4</td>
<td>CSE 120</td>
<td>CSE/ECE Elective</td>
</tr>
<tr>
<td></td>
<td>CSE/ECE Elective</td>
<td>CSE/ECE Elective</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ECE Undergraduate Student Affairs Office | Jacobs Hall 2701 & 2702 | ece.ucsd.edu

Questions? Go to vac.ucsd.edu
## ENGINEERING PHYSICS (B.S.)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>MATH 20A</td>
<td>MATH 20B</td>
<td>MATH 20C</td>
</tr>
<tr>
<td></td>
<td>CHEM 6A</td>
<td>PHYS 2A</td>
<td>PHYS 2B</td>
</tr>
<tr>
<td></td>
<td>ECE 15</td>
<td>ECE 25</td>
<td>ECE 35</td>
</tr>
<tr>
<td>Year 2</td>
<td>MATH 20D</td>
<td>MATH 20E</td>
<td>MATH 18</td>
</tr>
<tr>
<td></td>
<td>PHYS 2C</td>
<td>PHYS 2D &amp; 2DL</td>
<td>ECE 30</td>
</tr>
<tr>
<td></td>
<td>ECE 45</td>
<td>ECE 65</td>
<td>ECE 107</td>
</tr>
<tr>
<td>Year 3</td>
<td>ECE 100</td>
<td>ECE 102</td>
<td>ECE 109</td>
</tr>
<tr>
<td></td>
<td>ECE 101</td>
<td>ECE 103</td>
<td>PHYS 130A</td>
</tr>
<tr>
<td></td>
<td>PHYS 110A</td>
<td>MATH 110A</td>
<td>Elective #1</td>
</tr>
<tr>
<td>Year 4</td>
<td>Depth #1*</td>
<td>Depth #2*</td>
<td>Eng. Design</td>
</tr>
<tr>
<td></td>
<td>PHYS 130B</td>
<td>Elective #2</td>
<td>Elective #4</td>
</tr>
<tr>
<td></td>
<td>PHYS 140A</td>
<td>Elective #3</td>
<td>Elective #5</td>
</tr>
</tbody>
</table>

### MAJOR REQUIREMENTS

#### Lower Division Requirements
- CHEM 6A General Chemistry I
- MATH 20A Calculus I
- MATH 20B Calculus II
- MATH 20C Calculus III
- MATH 20D Differential Equations
- MATH 20E Vector Calculus
- MATH 20F Linear Algebra
- PHYS 2A Mechanics
- PHYS 2B Electricity and Magnetism
- PHYS 2C Fluid, Thermodynamics, and Optics
- PHYS 2D Relativity and Quantum
- PHYS 2DL

#### Upper Division Requirements
- ECE 100 Linear Electronic Systems
- ECE 101 Linear Systems Fundamentals
- ECE 102 Intro to Active Circuit Design
- ECE 103 Fundamentals/Devices & Matrices
- ECE 107 Electromagnetism
- ECE 109 Eng. Probability & Stats

**DEPTH:** 7 courses
- MATH 110A
- PHYS 110A
- PHYS 130A
- PHYS 130B
- PHYS 140A

* ECE 123 & 166 or ECE 135A & 135B or ECE 182 & (181 or 183): ☐ ☐

**Design Course:** ECE 111, 115, 191, or 190

**Electives:**
- 3 Professional
- 2 Technical
- ☐ ☐ ☐ ☐ ☐ ☐

---

**Please Note:**
- PHYS 2DL and PHYS 130A have prerequisites that are not listed above. PHYS 2DL requires PHYS 2BL or 2CL. PHYS 130A requires 100B and 110A. PHYS 100B requires PHYS 100A, 105A and MATH 18. The upper division prerequisites can be applied towards elective requirements.
- *ECE 123 & 166 or ECE 135A & 135B or ECE 182 & (181 or 183):
  The 2 depth courses indicated * are not always offered in fall and winter, consult with the ECE Undergraduate Office for more detailed information or visit our website.
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.
## ELECTRICAL ENGINEERING & SOCIETY (B.A.)

<table>
<thead>
<tr>
<th>Year</th>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 20A</td>
<td>MATH 20B</td>
<td>MATH 20C</td>
</tr>
<tr>
<td></td>
<td>CHEM 6A</td>
<td>PHYS 2A</td>
<td>PHYS 2B</td>
</tr>
<tr>
<td></td>
<td>ECE 15</td>
<td>ECE 25</td>
<td>ECE 35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 20D</td>
<td>MATH 20E</td>
<td>MATH 18</td>
</tr>
<tr>
<td></td>
<td>PHYS 2C</td>
<td>PHYS 2D</td>
<td>ECE 30</td>
</tr>
<tr>
<td></td>
<td>ECE 45</td>
<td>ECE 65</td>
<td>S/H Elective</td>
</tr>
<tr>
<td></td>
<td>S/H Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECE 100</td>
<td>ECE 102</td>
<td>Depth #1</td>
</tr>
<tr>
<td></td>
<td>ECE 101</td>
<td>ECE 107</td>
<td>Depth #2</td>
</tr>
<tr>
<td></td>
<td>ECE 103</td>
<td>ECE 109</td>
<td>E. Elective</td>
</tr>
<tr>
<td><strong>Year 4</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depth #3</td>
<td>Depth #5</td>
<td>Depth #6</td>
</tr>
<tr>
<td></td>
<td>Depth #4</td>
<td>Eng. Design</td>
<td>E. Elective</td>
</tr>
<tr>
<td></td>
<td>E. Elective</td>
<td>E. Elective</td>
<td></td>
</tr>
</tbody>
</table>

### MAJOR REQUIREMENTS

**Lower Division Requirements**

- CHEM 6A General Chemistry I
- MATH 20A Calculus I
- MATH 20B Calculus II
- MATH 20C Calculus III
- MATH 20D Differential Equations
- MATH 20E Vector Calculus
- MATH 18 Linear Algebra
- PHYS 2A Mechanics
- PHYS 2B Electricity and Magnetism
- PHYS 2C Flu,Wav,Thrmdyn,Optics
- PHYS 2D Relativity & Quantum

2 courses in Social Sciences/Humanities

- ECE 15 Engineering Computation
- ECE 25 Intro to Digital Design
- ECE 30 Intro to Computer Eng
- ECE 35 Intro to Analog Design
- ECE 45 Circuits & Systems
- ECE 65 Components & Circuits Lab

**Upper Division Requirements**

- ECE 100 Linear Electronic Systems
- ECE 101 Linear Systems Fundamentals
- ECE 102 Intro Active Circuit Design
- ECE 103 Fundamentals/Devices & Matrls
- ECE 107 Electromagnetism
- ECE 109 Eng. Probability & Stats

- Design Course: ECE 111, 115, 191, or 190

**Electives:**

- Technical

- ECE 111
- ECE 115
- ECE 191
- ECE 190

### PLEASE NOTE:

- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.
### Communications Systems Depth

<table>
<thead>
<tr>
<th></th>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>MATH 18</td>
<td>MATH 20A</td>
<td>MATH 20B</td>
</tr>
<tr>
<td></td>
<td>ECE 5 or CHEM 6A</td>
<td>CHEM 6A or ECE 5</td>
<td>PHYS 2A</td>
</tr>
<tr>
<td></td>
<td>ECE 15</td>
<td>ECE 25</td>
<td>ECE 30</td>
</tr>
<tr>
<td>Year 2</td>
<td>MATH 20C</td>
<td>MATH 20D</td>
<td>MATH 20E</td>
</tr>
<tr>
<td></td>
<td>PHYS 2B</td>
<td>PHYS 2C</td>
<td>PHYS 2D</td>
</tr>
<tr>
<td></td>
<td>ECE 35</td>
<td>ECE 45</td>
<td>ECE 65</td>
</tr>
<tr>
<td>Year 3</td>
<td>ECE 100</td>
<td>ECE 102</td>
<td>ECE 107</td>
</tr>
<tr>
<td></td>
<td>ECE 101</td>
<td>ECE 109</td>
<td>ECE 153</td>
</tr>
<tr>
<td></td>
<td>Tech. Elective 1</td>
<td>Tech. Elective 2</td>
<td>Prof. Elective 1</td>
</tr>
<tr>
<td>Year 4</td>
<td>ECE 154A</td>
<td>ECE 154B</td>
<td>ECE 154C</td>
</tr>
<tr>
<td></td>
<td>ECE 158A</td>
<td>Tech. Elective 3</td>
<td>Design</td>
</tr>
<tr>
<td></td>
<td>Prof. Elective 2</td>
<td>Tech. Elective 4</td>
<td></td>
</tr>
</tbody>
</table>

### MAJOR REQUIREMENTS

#### Lower Division Requirements
- [ ] CHEM 6A General Chemistry I
- [ ] MATH 18 Linear Algebra
- [ ] MATH 20A Calculus I
- [ ] MATH 20B Calculus II
- [ ] MATH 20C Calculus III
- [ ] MATH 20D Differential Equations
- [ ] MATH 20E Vector Calculus
- [ ] PHYS 2A Mechanics
- [ ] PHYS 2B Electricity and Magnetism
- [ ] PHYS 2C Flu,Wav,Thrmdyn,Optics
- [ ] PHYS 2D Relativity & Quantum
- [ ] ECE 5 Intro to ECE
- [ ] ECE 15 Engineering Computation
- [ ] ECE 25 Intro to Digital Design
- [ ] ECE 30 Intro to Computer Eng
- [ ] ECE 35 Intro to Analog Design
- [ ] ECE 45 Circuits & Systems
- [ ] ECE 65 Components & Circuits Lab

#### Upper Division Requirements

**BREADTH**
- [ ] ECE 100 Linear Electronic Systems
- [ ] ECE 101 Linear Systems Fundamentals
- [ ] ECE 102 Intro Active Circuit Design
- [ ] ECE 107 Electromagnetism
- [ ] ECE 109 Eng. Probability & Stats

**COMMUNICATIONS SYSTEMS DEPTH**
- [ ] ECE 153 Probability and Random Processes for Engineers
- [ ] ECE 154A Communications Systems I
- [ ] ECE 154B Communications Systems II
- [ ] ECE 154C Communications Systems III
- [ ] ECE 158A Data Networks I
- [ ] Design Course: ECE 111, 115, 191, or 190

**ELECTIVES**
- 4 Technical
- 2 Professional

**PLEASE NOTE:**
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.
<table>
<thead>
<tr>
<th>Computer System Design Depth</th>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>MATH 18</td>
<td>MATH 20A</td>
<td>MATH 20B</td>
</tr>
<tr>
<td>ECE 5 or CHEM 6A</td>
<td>CHEM 6A or ECE 5</td>
<td>PHYS 2A</td>
<td></td>
</tr>
<tr>
<td>ECE 15</td>
<td>ECE 25</td>
<td>ECE 30</td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td>MATH 20C</td>
<td>MATH 20D</td>
<td>MATH 20E</td>
</tr>
<tr>
<td>PHYS 2B</td>
<td>PHYS 2C</td>
<td>PHYS 2D</td>
<td></td>
</tr>
<tr>
<td>ECE 35</td>
<td>ECE 45</td>
<td>ECE 65</td>
<td></td>
</tr>
<tr>
<td>Year 3</td>
<td>ECE 100</td>
<td>ECE 102</td>
<td>ECE 165</td>
</tr>
<tr>
<td>ECE 101</td>
<td>ECE 109</td>
<td>Tech. Elective 2</td>
<td></td>
</tr>
<tr>
<td>ECE 103</td>
<td>Tech. Elective 1</td>
<td>Prof. Elective 1</td>
<td></td>
</tr>
<tr>
<td>Year 4</td>
<td>ECE 158A*</td>
<td>CSE 141</td>
<td>ECE 111*</td>
</tr>
<tr>
<td>Tech. Elective 3</td>
<td>Tech. Elective 4</td>
<td>Design</td>
<td></td>
</tr>
<tr>
<td>Prof. Elective 2</td>
<td>Tech. Elective 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE NOTE:**
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.
### Electronic Circuits & Systems Depth

<table>
<thead>
<tr>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 18</td>
<td>MATH 20A</td>
<td>MATH 20B</td>
</tr>
<tr>
<td>ECE 5 or CHEM 6A</td>
<td>CHEM 6A or ECE 5</td>
<td>PHYS 2A</td>
</tr>
<tr>
<td>ECE 15</td>
<td>ECE 25</td>
<td>ECE 30</td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 20C</td>
<td>MATH 20D</td>
<td>MATH 20E</td>
</tr>
<tr>
<td>PHYS 2B</td>
<td>PHYS 2C</td>
<td>PHYS 2D</td>
</tr>
<tr>
<td>ECE 35</td>
<td>ECE 45</td>
<td>ECE 65</td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 100</td>
<td>ECE 102</td>
<td>ECE 107</td>
</tr>
<tr>
<td>ECE 101</td>
<td>ECE 109</td>
<td>ECE 165</td>
</tr>
<tr>
<td>ECE 103</td>
<td>Tech. Elective 1</td>
<td>Prof. Elective 1</td>
</tr>
<tr>
<td><strong>Year 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 164</td>
<td>Tech. Elective 2</td>
<td>Tech. Elective 5</td>
</tr>
<tr>
<td>ECE 166</td>
<td>Tech. Elective 3</td>
<td>Design</td>
</tr>
<tr>
<td>Prof. Elective 2</td>
<td>Tech. Elective 4</td>
<td></td>
</tr>
</tbody>
</table>

### Upper Division Requirements

**BREADTH**
- ECE 100 Linear Electronic Systems
- ECE 101 Linear Systems Fundamentals
- ECE 102 Intro Active Circuit Design
- ECE 103 Fundamentals/Deviscs & Matriks
- ECE 107 Electromagnetism
- ECE 109 Eng. Probability & Stats

**ELECTRONIC CIRCUITS & SYSTEMS DEPTH**
- ECE 164 Analog Integrated Circuit Design
- ECE 165 Digital Integrated Circuit Design
- ECE 166 Microwave Systems and Circuits

**Design Course:** ECE 111, 191, or 190

### MAJOR REQUIREMENTS

#### Lower Division Requirements
- CHEM 6A General Chemistry I
- MATH 20A Calculus I
- PHYS 2A Mechanics
- MATH 20B Calculus II
- PHYS 2B Electricity and Magnetism
- MATH 20C Calculus III
- PHYS 2C Flu,Wav,Thrmdyn,Optics
- MATH 20D Differential Equations
- PHYS 2D Relativity & Quantum
- MATH 18 Linear Algebra

#### Upper Division Requirements
- ECE 5 Intro to ECE
- ECE 15 Engineering Computation
- ECE 25 Intro to Digital Design
- ECE 30 Intro to Computer Eng
- ECE 35 Intro to Analog Design
- ECE 45 Circuits & Systems
- ECE 65 Components & Circuits Lab

### ELECTIVES
- 5 Technical
- Prof. Elective

### PLEASE NOTE:
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- *Due to six different college requirements, only major requirements are listed.*
**Electronic Devices & Materials Depth**

<table>
<thead>
<tr>
<th></th>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>MATH 18</td>
<td>MATH 20A</td>
<td>MATH 20B</td>
</tr>
<tr>
<td></td>
<td>ECE 5 or CHEM 6A</td>
<td>CHEM 6A or ECE 5</td>
<td>PHYS 2A</td>
</tr>
<tr>
<td></td>
<td>ECE 15</td>
<td>ECE 25</td>
<td>ECE 30</td>
</tr>
<tr>
<td>Year 2</td>
<td>MATH 20C</td>
<td>MATH 20D</td>
<td>MATH 20E</td>
</tr>
<tr>
<td></td>
<td>PHYS 2B</td>
<td>PHYS 2C</td>
<td>PHYS 2D</td>
</tr>
<tr>
<td></td>
<td>ECE 35</td>
<td>ECE 45</td>
<td>ECE 65</td>
</tr>
<tr>
<td>Year 3</td>
<td>ECE 100</td>
<td>ECE 102</td>
<td>ECE 107</td>
</tr>
<tr>
<td></td>
<td>ECE 101</td>
<td>ECE 109</td>
<td>Tech. Elective 2</td>
</tr>
<tr>
<td></td>
<td>ECE 103</td>
<td>Tech. Elective 1</td>
<td>Prof. Elective 1</td>
</tr>
<tr>
<td>Year 4</td>
<td>ECE 135A</td>
<td>ECE 135B</td>
<td>ECE 136L</td>
</tr>
<tr>
<td></td>
<td>Tech. Elective 3</td>
<td>ECE 183</td>
<td>Design</td>
</tr>
<tr>
<td></td>
<td>Prof. Elective 2</td>
<td>Tech. Elective 4</td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE NOTE:**
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.

**MAJOR REQUIREMENTS**

**Lower Division Requirements**
- CHEM 6A General Chemistry I
- PHYS 2A Mechanics
- PHYS 2B Electricity and Magnetism
- PHYS 2C Flu, Wav, Thrm, Dyn, Optics
- PHYS 2D Relativity & Quantum
- MATH 20A Calculus I
- MATH 20B Calculus II
- MATH 20C Calculus III
- MATH 20D Differential Equations
- MATH 20E Vector Calculus
- MATH 18 Linear Algebra

**Upper Division Requirements**

**BREADTH**
- ECE 100 Linear Electronic Systems
- ECE 101 Linear Systems Fundamentals
- ECE 102 Intro Active Circuit Design
- ECE 103 Fundamentals/Devices & Matrls
- ECE 107 Electromagnetism
- ECE 109 Eng. Probability & Stats

**ELECTRONIC DEVICES & MATERIALS DEPTH**
- ECE 135A Semiconductor Physics
- ECE 135B (Electronic Devices
- ECE 136L Microelectronics Laboratory
- ECE 183 Optical Electronics

- Design Course: ECE 111, 191, or 190

**ELECTIVES**

- 4 Technical
- 2 Professional

Questions? Go to vac.ucsd.edu
### MAJOR REQUIREMENTS

#### Lower Division Requirements
- CHEM 6A General Chemistry I
- MATH 18 Linear Algebra
- PHYS 2A Mechanics
- PHYS 2B Electricity and Magnetism
- PHYS 2C Flu, Wav, Thrmdyn, Optics
- PHYS 2D Relativity & Quantum
- MATH 18 Linear Algebra
- MATH 20A Calculus I
- MATH 20B Calculus II
- MATH 20C Calculus III
- MATH 20D Differential Equations
- MATH 20E Vector Calculus
- MATH 18 Linear Algebra
- MATH 20A Calculus I
- MATH 20B Calculus II
- MATH 20C Calculus III
- MATH 20D Differential Equations
- MATH 20E Vector Calculus
- MATH 18 Linear Algebra
- MATH 20A Calculus I
- MATH 20B Calculus II
- MATH 20C Calculus III
- MATH 20D Differential Equations
- MATH 20E Vector Calculus

#### Upper Division Requirements

**BREADTH**
- ECE 100 Linear Electronic Systems
- ECE 101 Linear Systems Fundamentals
- ECE 107 Electromagnetism
- ECE 109 Eng. Probability & Stats

**MACHINE LEARNING & CONTROLS DEPTH**
- ECE 171A Linear Control System Theory)
- ECE 174 Intro to Linear and Nonlinear Optimization with Applications
- ECE 175A Elements of MI: Pattern Recognition & Machine Learning
- ECE 175B Elements of MI: Probabilistic Reasoning & Graphical Models
- ECE 174 Intro to Linear and Nonlinear Optimization with Applications
- ECE 175A Elements of MI: Pattern Recognition & Machine Learning
- ECE 175B Elements of MI: Probabilistic Reasoning & Graphical Models

#### Design Course: ECE 111, 191, or 190

### ELECTIVES

- 6 Technical
- 2 Professional

---

**PLEASE NOTE:**
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.
## MAJOR REQUIREMENTS

### Lower Division Requirements
- CHEM 6A General Chemistry I
- MATH 18 Linear Algebra
- PHYS 2A Mechanics
- PHYS 2B Electricity and Magnetism
- PHYS 2C Flu, Wav, Thmdyn, Optics
- PHYS 2D Relativity & Quantum
- MATH 20A Calculus I
- MATH 20B Calculus II
- MATH 20C Calculus III
- MATH 20D Differential Equations
- MATH 20E Vector Calculus

<table>
<thead>
<tr>
<th>Year</th>
<th>FALL</th>
<th>WINTER</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MATH 18</td>
<td>MATH 20A</td>
<td>MATH 20B</td>
</tr>
<tr>
<td></td>
<td>ECE 5 or CHEM 6A</td>
<td>CHEM 6A or ECE 5</td>
<td>PHYS 2A</td>
</tr>
<tr>
<td></td>
<td>ECE 15</td>
<td>ECE 25</td>
<td>ECE 30</td>
</tr>
<tr>
<td>2</td>
<td>MATH 20C</td>
<td>MATH 20D</td>
<td>MATH 20E</td>
</tr>
<tr>
<td></td>
<td>PHYS 2B</td>
<td>PHYS 2C</td>
<td>PHYS 2D</td>
</tr>
<tr>
<td></td>
<td>ECE 35</td>
<td>ECE 45</td>
<td>ECE 65</td>
</tr>
<tr>
<td>3</td>
<td>ECE 100</td>
<td>ECE 107</td>
<td>ECE 181</td>
</tr>
<tr>
<td></td>
<td>ECE 101</td>
<td>ECE 109</td>
<td>Tech. Elective 2</td>
</tr>
<tr>
<td></td>
<td>ECE 103</td>
<td>Tech. Elective 1</td>
<td>Prof. Elective 1</td>
</tr>
<tr>
<td>4</td>
<td>ECE 182</td>
<td>ECE 183</td>
<td>ECE 185*</td>
</tr>
<tr>
<td></td>
<td>Tech. Elective 3</td>
<td>ECE 184*</td>
<td>Tech. Elective 5</td>
</tr>
<tr>
<td></td>
<td>Prof. Elective 2</td>
<td>Tech. Elective 4</td>
<td>Design</td>
</tr>
</tbody>
</table>

### Upper Division Requirements

**BREADTH**
- ECE 100 Linear Electronic Systems
- ECE 101 Linear Systems Fundamentals
- ECE 103 Fundamentals/Devices & Matrls
- ECE 107 Electromagnetism
- ECE 109 Eng. Probability & Stats

**PHOTONICS DEPTH**
- ECE 181 Physical Optics and Fourier Optics
- ECE 182 Electromagnetic Optics, Guided-Wave, and Fiber Optics
- ECE 183 Optical Electronics
- *One of: ECE 184 Optical Information Processing and Holography, OR ECE 185 Lasers and Modulators

- Design Course: ECE 111, 191, or 190

**ELECTIVES**
5 Technical
- ____________
- ____________
- ____________

2 Professional
- ____________

---

**PLEASE NOTE:**
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.

---

ECE Undergraduate Student Affairs Office | Jacobs Hall 2701 & 2702 | ece.ucsd.edu
Questions? Go to vac.ucsd.edu
## MAJOR REQUIREMENTS

### Lower Division Requirements
- **Chemistry**
  - CHEM 6A: General Chemistry I

- **Mathematics**
  - MATH 18: Linear Algebra
  - MATH 20A: Calculus I
  - MATH 20B: Calculus II
  - MATH 20C: Calculus III
  - MATH 20D: Differential Equations

- **Physics**
  - PHYS 2A: Mechanics
  - PHYS 2B: Electricity and Magnetism
  - PHYS 2C: Flu, Wav, Thrmdyn, Optics
  - PHYS 2D: Relativity & Quantum

- **Electrical and Computer Engineering**
  - ECE 5: Intro to ECE
  - ECE 15: Engineering Computation
  - ECE 25: Intro to Digital Design

### Upper Division Requirements

#### BREADTH
- **ECE 100**: Linear Electronic Systems
- **ECE 107**: Electromagnetism
- **ECE 109**: Eng. Probability & Stats

#### SIGNAL & IMAGE PROCESSING DEPTH
- **ECE 153**: Probability and Random Processes for Engineers
- **ECE 161A**: Intro to Digital Signal Processing
- **ECE 161B**: Digital Signal Processing I
- **ECE 161C**: Applications of Digital Signal Processing

#### Design Course: ECE 111, 191, or 190

### ELECTIVES
- 6 Technical
- 2 Professional

---

**PLEASE NOTE:**
- All courses used to satisfy major requirements must be taken for a LETTER GRADE and completed with a C– or better.
- Depth courses are offered only once a year. Course offerings are subject to change.
- For personalized course plans, please set up an appointment with an advisor.
- Due to six different college requirements, only major requirements are listed.