Plan of Study for the Electrical Engineering SB Concentration  
Effective for Students Declaring the Concentration after July 1, 2015

DATE: ___________________  NAME: ______________________________

CLASS: _______________  EMAIL: ______________________________

This Plan of Study Form is for a (Circle One): DECLARATION  REVISION

The S.B. Program in Electrical Engineering must contain at least 20 half courses: 4 half-courses in mathematics, 4 half-courses in basic sciences, and 12 half-courses in engineering topics. Plans of Study will not be considered final until this form has been signed. The signature of this form ensures that the proposed plan meets the ABET distribution requirements.

<table>
<thead>
<tr>
<th>REQUIRED COURSES</th>
<th>Math</th>
<th>Science</th>
<th>Engr. Topics</th>
<th>Semester (Fall/Spring Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mathematics Required</strong></td>
<td></td>
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<tr>
<td>Math 1a – Intro to Calculus 1</td>
<td>1.00</td>
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<tr>
<td>Math 1b – Intro to Calculus 2</td>
<td>1.00</td>
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<tr>
<td>AM 21a – Mathematical Methods in the Sciences 1</td>
<td>1.00</td>
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<td>(or Math 21a or 23a)</td>
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<tr>
<td>AM 21b – Mathematical Methods in the Sciences 2</td>
<td>1.00</td>
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<tr>
<td>(or Math 21b or 23b)</td>
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<tr>
<td><strong>Mathematics Elective</strong> (if you started in AM/Math 21a)</td>
<td>1.00</td>
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<td>1.</td>
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<tr>
<td><strong>Probability and Statistics</strong></td>
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<tr>
<td>ES 150 – Intro to Probability with Engineering Applications</td>
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</table>

| Physics | | 1.00 |         | |
| AP 50a – Physics as a Foundation for Sci & Eng 1 | | | | |
| (or PS 12a, Physics 15a or 16) | | | | |
| AP 50b - Physics as a Foundation for Sci & Eng 2 | | | | |
| (or PS 12b or Physics 15b) | | | | |

| Science Electives | | 1.00 |         | |
| See list on page 3 | | | | |
| 1. | | | | |
| 2. | | | | |

| Computer Science | CIRCLE ONE | 1.00 |         | |
| CS 50 – Intro to Computer Science 1 | | | | |
| CS 51 – Intro to Computer Science 2 | | | | |
| CS 61 – System Programming & Machine Organization | | | | |

**Sophomore Forum**
### REQUIRED COURSES

(Circle course and % for course you are taking or plan to take in each category.)

<table>
<thead>
<tr>
<th>Math</th>
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<th>Engr. Topics</th>
<th>Semester</th>
<th>Fall/Spring Year</th>
</tr>
</thead>
</table>

#### Electrical Engineering Core
- ES 52 – The Joy of Electronics – Part 1
  - or ES 153 – Laboratory Electronics
- ES 154 – Electronic Devices & Circuits
- ES 156 – Signals & Systems

*Choose one:*
- ES 173 – Intro to Electronic & Photonic Devices
- CS 141 – Computing Hardware
- CS 148 – Design of VLSI Circuits & Systems

#### Electrical Engineering Electives
See list on page 3

*Students should consult an advisor to select an appropriate set of Electrical/Engineering Electives*

1. __________________________ 1.00 _____________
2. __________________________ 1.00 _____________
3. __________________________ 1.00 _____________

#### Engineering (or Additional Electrical) Electives
See list on page 3

1. __________________________ 1.00 _____________
2. __________________________ 1.00 _____________

#### Engineering Design
- ES 96 – Engineering Problem Solving & Design Project
- ES 100hf – Engineering Design Projects

#### TOTALS
/4 /4 /12

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Student signature

________________________________________ Date: _____________

Assistant/Director of Undergraduate Signature

________________________________________ Date: _____________

This plan does/does not meet the ABET distribution requirements

________________________________________ Date: _____________

Assistant Dean for Education/Student Affairs Office

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*Electrical Engineering SB*

*Rev. Jun 2015*
Mathematics Electives
• AM 104 – Series Expan & Complex Analysis
• AM 105 – Ordinary & Partial Diff Eqs
• AM 106 – Applied Algebra
• AM 107 – Graph Theory & Combinatorics
• AM 120 - Applicable Linear Algebra
• AM 147 – Nonlinear Dynamical Systems

Science Electives
Introductory Courses
• LS 1a - Intro to the Life Sciences
  or LPS A – Foundational Chem & Bio
• PS 1 - Chem Bonding, Energy, & Reactivity
  or PS 11 – Found & Frontiers of Modern Chem
• PS 10 - Quantum & Stat Found of Chem
• Physics 15c – Wave Phenomena

Upper Level Courses
• Chemistry 160 - Quantum Chemistry
• Physics 140 – Intro to Biophysics
• Physics 143a - Quantum Mechanics I
• Physics 153 – Electrodynamics

Electrical Engineering Electives
ES 50 can only be taken for concentration credit during freshman or sophomore year
• AP 195 – Intro to Solid State Physics
• BE 130 – Neural Control of Movement
• CS 51 – Intro to Comp Science 2 (only 2 of CS 50, 51, 61 count toward requirements)
• CS 141 – Computing Hardware
• CS 143 – Computer Networks
• CS 144r – Networks Design Projects
• CS 146 – Computer Architecture
• CS 148 – Design of VLSI Circuits & Systems
• CS 189r – Autonomous Multi-Robot Systems
• ES 50 – Intro to Electrical Engineering
• ES 151 – Applied Electromagnetism
• ES 155 – Biological Signal Processing
• ES 158 – Feedback Systems: Analysis & Design
• ES 159 – Intro to Robotics
• ES 173 – Intro to Electronic & Photonic Dev
• ES 175 – Photovoltaic Devices
• ES 176 – Intro to MEMS
• ES 177 – Micro Fabrication Laboratory

Engineering Electives (Incomplete List)
For courses that are co-listed in another department, students must enroll in the Engineering Sciences offering
ES 6 and 53 can only be taken for concentration credit during freshman or sophomore year
• BE 110 - Physiological Systems Analysis
• BE 191 – Intro to Biomaterials
• CS 61 - System Program & Machine Org (only 2 of CS 50, 51, 61 count toward requirements)
• CS 124 – Data Structures & Algorithms
  or CS 125 – Algorithms & Complexity
• CS 175 – Computer Graphics
• CS 179 - Design of Usable Interactive Sys
• CS 181 – Machine Learning
• CS 182 - Intelligent Machines: Reasoning, Actions, & Plans
• CS 187 – Computational Linguistics
• ES 6 – Environmental Science & Technology
• ES 51 – Computer Aided Machine Design
• ES 53 – Quant Physiology or Bioengineering
• ES 111 – Intro to Scientific Computing
• ES 115 – Mathematical Modeling
• ES 121 – Intro to Optimization
• ES 120 – Intro to the Mechanics of Solids
• ES 123 – Intro to Fluid Mech & Transport Processes
• ES 125 – Mechanical Systems
• ES 135 – Phys & Chem: In the Context of Energy & Climate
• ES 137 – Energy within Enviro Constraints
• ES 162 – Hydrology & Enviro Geomechanics
• ES 163 – Pollution Control in Aquatic Ecosystems
• ES 164 – Environmental Chemistry
• ES 165 – Water Engineering
• ES 181 – Engineering Thermodynamics
• ES 190 – Intro to Materials Sci & Eng