Plan of Study for the Electrical Engineering SB Concentration
Effective for Students Declaring the Concentration after Nov 1, 2014

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.

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

<table>
<thead>
<tr>
<th></th>
<th>Math</th>
<th>Science</th>
<th>Engr. Topics</th>
<th>Semester (Fall/Spring Year)</th>
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<tbody>
<tr>
<td><strong>Mathematics Required</strong></td>
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<tr>
<td>Math 1a – Intro to Calculus 1</td>
<td>1.00</td>
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<td>Math 1b – Intro to Calculus 2</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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<td>(or Math 21b or 23b)</td>
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<td><strong>Mathematics Elective</strong> (if you started in AM/Math 21a)</td>
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<tr>
<td>1.</td>
<td>1.00</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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<td><strong>Physics</strong></td>
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<td>AP 50a – Physics as a Foundation for Sci &amp; Eng 1</td>
<td>1.00</td>
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<td>(or PS 12a, Physics 15a or 16)</td>
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<tr>
<td>AP 50b - Physics as a Foundation for Sci &amp; Eng 2</td>
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<td>(or PS 12b or Physics 15b)</td>
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<td><strong>Science Electives</strong> See list on page 3</td>
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<td>1.</td>
<td>1.00</td>
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<td>2.</td>
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<td><strong>Computer Science</strong> CIRCLE ONE</td>
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<tr>
<td>CS 50 – Intro to Computer Science 1</td>
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<td>CS 51 – Intro to Computer Science 2</td>
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<td>CS 61 – System Programming &amp; Machine Organization</td>
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<td>** Sophomore Forum**</td>
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Electrical Engineering SB
Rev. Nov 2014
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#### 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

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**TOTALS**

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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
Mathematics Electives
- AM 104 – Series Expans & Complex Analysis
- AM 105 – Ordinary & Partial Diff Eq
- 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
- PS 10 - Quantum & Stat Found of Chem
- PS 11 – Found & Frontiers of Modern 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
- 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)
- ES 151 – Applied Electromagnetism
- ES 155 – Biological Signal Processing
- ES 158 – Feedback Systems: Analysis & Design
- ES 159 – Intro to Robotics
- ES 170 – Applied Quantum Mechanics
- 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

- 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 Enviromental Constraints
  - ES 162 – Hydrology & Enviromental 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