Plan of Study for the Engineering Physics Track
of the Engineering Sciences AB Concentration
Effective for Students Declaring the Concentration after July 1, 2014

NAME: ___________________________  CLASS: ___________________________

EMAIL: ___________________________  DATE: ___________________________

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

<table>
<thead>
<tr>
<th>REQUIRED COURSES</th>
<th>Semester (FA/SP Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required Mathematics</strong> (2-4 half-courses)</td>
<td></td>
</tr>
<tr>
<td>Begin according to placement</td>
<td></td>
</tr>
<tr>
<td>Math 1a – Introduction to Calculus I</td>
<td>_____</td>
</tr>
<tr>
<td>Math 1b – Introduction to Calculus II</td>
<td>_____</td>
</tr>
<tr>
<td>Applied Mathematics 21a – Mathematical Methods in the Sciences I</td>
<td>_____</td>
</tr>
<tr>
<td>(or Mathematics 21a or 23a)</td>
<td></td>
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<tr>
<td>Applied Mathematics 21b – Mathematical Methods in the Sciences II</td>
<td>_____</td>
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<tr>
<td>(or Mathematics 21b or 23b)</td>
<td></td>
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<tr>
<td><strong>Required Physics</strong> (2 half-courses)</td>
<td></td>
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<tr>
<td>Applied Physics 50a – Physics as a Foundation for Sci. &amp; Eng. I</td>
<td>_____</td>
</tr>
<tr>
<td>(or Physical Sciences 12a or Physics 15a or Physics 16)</td>
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</tr>
<tr>
<td>Applied Physics 50b – Physics as a Foundation for Sci. &amp; Eng. II</td>
<td>_____</td>
</tr>
<tr>
<td>(or Physical Sciences 12b or Physics 15b)</td>
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<tr>
<td><strong>Applied Mathematics</strong> See list on page 3</td>
<td></td>
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<tr>
<td>1.</td>
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<tr>
<td><strong>Required Computer Science</strong> (Choose 1 half-course)</td>
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<tr>
<td>CS 50 – Introduction to Computer Science I</td>
<td>_____</td>
</tr>
<tr>
<td>CS 51 – Introduction to Computer Science II</td>
<td>_____</td>
</tr>
<tr>
<td>CS 60 – System Programming &amp; Machine Organization</td>
<td></td>
</tr>
<tr>
<td><strong>Sophomore Forum</strong> Required, non-credit.</td>
<td>_____</td>
</tr>
<tr>
<td><strong>Required Core for Either Subtrack</strong> (3-half courses)</td>
<td></td>
</tr>
<tr>
<td>Select Engineering Sciences 6 plus three courses from the options below.</td>
<td></td>
</tr>
<tr>
<td>Physics 143a - Quantum Mechanics I</td>
<td>_____</td>
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<tr>
<td><em>or</em> Chemistry 160 - Quantum Chemistry</td>
<td></td>
</tr>
<tr>
<td>ES 181 – Engineering Thermodynamics</td>
<td>_____</td>
</tr>
<tr>
<td><em>or</em> Physics 181 - Statistical Mechanics and Thermodynamics</td>
<td></td>
</tr>
<tr>
<td>ES 190 – Intro to Materials Science &amp; Engineering</td>
<td>_____</td>
</tr>
</tbody>
</table>
### REQUIRED COURSES
(Circle or fill-in the course number for each course you plan to take in each category.)

<table>
<thead>
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<th>Semester (FA/SP Year)</th>
</tr>
</thead>
</table>

#### For the Materials, Optoelectronics, and Photonics Subtrack (3-half courses)

- ES 173 - Intro to Electronic & Photonic Devices
- ES 177 - Microfabrication Laboratory
- Applied Physics 195 - Introduction to Solid State Physics
  - or ES 120 - Intro to the Mechanics of Solids

#### For the Earth and Planetary Physics Subtrack (3-half courses)

Select One:
- ES 123 – Intro to Fluid Mechanics & Transport Processes
- ES 131 – Intro to Physical Oceanography & Climate
- ES 132 – Intro to Meteorology & Climate
- ES 162 – Hydrology and Environmental Geomechanics

Select One:
- ES 120 – Intro to the Mechanics of Solids
- EPS 161 – Planetary Physics and Global Tectonics
- EPS 166 – Consequences of Earthquakes
- EPS 171 – Structural Geology and Tectonics

Select One:
- EPS 121 – Terrestrial Planets
- Astronomy 189 – Exoplanet Systems

#### Approved Electives (2 half-courses)
Select two courses from the list on Page 4.

1. 
2. 

### Required Signatures:

Student ___________________________ Date __________

Assistant Director for Undergraduate Studies ___________________________ Date __________

ADUS indicate if a petition is needed: Yes_____ No_____
Applied Mathematics
- AM 104 – Series Expansions & Complex Analysis
- AM 105 – Ordinary & Partial Differential Equations
- AM 106 – Applied Algebra
- AM 107 – Graph Theory & Combinatorics
- AM 120 – Applicable Linear Algebra
- AM 147 – Nonlinear Dynamical Systems

Engineering Physics Electives
*Only if taken during Freshman or Sophomore years*
- ES 1 – Intro to Engineering Sciences
- ES 6 – Environmental Science & Technology
- ES 50 – Introduction to Electrical Engineering
- AM 104 – Series Expansions & Complex Analysis
- AM 105 – Ordinary & Partial Differential Equations
- AM 120 - Applicable Linear Algebra
- AM 147 – Nonlinear Dynamical Systems
- Applied Physics 195 – Intro to Solid State Physics
- Astronomy 189 - Exoplanet Systems
- EPS 161 – Planetary Physics and Global Tectonics
- EPS 166 – Consequences of Earthquakes
- EPS 171 – Structural Geology and Tectonics
- ES 51 – Computer Aided Machine Design
- ES 53 – Quantitative Physiology as a Basis for Bioengineering
- ES 111 – Intro to Scientific Computing
- ES 115 - Mathematical Modeling
- ES 120 – Intro to the Mechanics of Solids
- ES 123 – Intro to Fluid Mechanics & Transport Processes
- ES 125 – Mechanical Systems
- ES 128 - Computational Solid and Structural Mechanics
- ES 131 – Intro to Physical Oceanography & Climate
- ES 132 - Intro to Meteorology & Climate
- ES 153 – Laboratory Electronics
- ES 162 - Hydrology and Environmental Geomechanics
- ES 173 – Intro to Electronic & Photonic Devices
- ES 175 – Photovoltaic Technologies
- ES 177 - Microfabrication Laboratory
- Physics 140 – Physical Biology and Biological Physics
- Physics 153 – Electrodynamics
- Physics 175 – Laser Physics & Modern Optical Physics