Plan of Study for the Engineering Physics Track

of the Engineering Sciences AB Concentration

Effective for Students Declaring the Concentration after July 1, 2016

NAME: _____ CLASS: _____

EMAIL: _____ DATE: _____

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

REQUIRED COURSES (Circle or fill-in for courses planned in each category.)	**Semester** (FA/SP Year)
Mathematics (2-4 courses) *Begin according to placement:* Math 1a – Introduction to Calculus I Math 1b – Calculus, Series, and Differential Equations Applied Mathematics 21a – Mathematical Methods in the Sciences I (or Mathematics 21a or 23a) Applied Mathematics 21b – Mathematical Methods in the Sciences II (or Mathematics 21b or 23b)	 _____ _____ _____ _____
Applied Mathematics (1 course) *Select one:* AM 104 – Series Expansions & Complex Analysis AM 105 – Ordinary & Partial Differential Equations AM 108 – Nonlinear Dynamical Systems ES 111 – Introduction to Scientific Computing	 _____
Physics (2 courses) AP 50a – Physics as a Foundation for Sci. & Eng. Part I (or PS 12a or Physics 15a or 16) AP 50b – Physics as a Foundation for Sci. & Eng. Part II (or PS 12b or Physics 15b)	 _____ _____
Computer Science (1 course) *Select one:* CS 50 – Introduction to Computer Science I CS 51 – Introduction to Computer Science II CS 61 – Systems Programming & Machine Organization	 _____
Sophomore Forum *Required, non-credit.*	 _____
Engineering Physics Core (3 courses) Physics 143a - Quantum Mechanics I (or Chemistry 160 - Quantum Chemistry) ES 181 – Engineering Thermodynamics (or Physics 181 - Statistical Mechanics and Thermodynamics) ES 190 – Intro to Materials Science & Engineering	 _____ _____ _____

REQUIRED COURSES (Circle or fill-in for courses planned in each category.)	**Semester** (FA/SP Year)
Subtrack-specific Courses (3 courses) *Select either Subtrack:* • *Materials, Optoelectronics, and Photonics Subtrack* o ES 173 – Intro to Electronic & Photonic Devices o ES 177 – Microfabrication Laboratory o Applied Physics 195 – Introduction to Solid State Physics (or ES 120 – Intro to the Mechanics of Solids) • *Earth and Planetary Physics Subtrack* o *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 o *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 o *Select one*: EPS 121 – Terrestrial Planets Astronomy 189 – Exoplanet Systems	_____ _____ _____
Approved Electives (2 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_____

_____ _____
Director for Undergraduate Studies Date

Engineering Physics Electives

Only if taken during Freshman or Sophomore year:

- *ES 6 – Introduction to Environmental Science & Engineering*
- *ES 50 – Introduction to Electrical Engineering*
- *ES 53 – Quantitative Physiology as a Basis for Bioengineering*

- AM 104 – Series Expansions & Complex Analysis
- AM 105 – Ordinary & Partial Differential Equations
- AM 108 – Nonlinear Dynamical Systems
- AM 120 – Applied Linear Algebra and Big Data
- 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 91r – Supervised Reading and Research (*one term only*)
- 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