Plan of Study for the Electrical Engineering SB Concentration

Effective for Students Declaring the Concentration after July 1, 2016

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.

REQUIRED COURSES (Circle course and % for course you are taking or plan to take in each category.)	**Math**	**Science**	**Engr. Topics**	**Semester** (Fall/Spring Year)
Mathematics Required				
Math 1a – Intro to Calculus 1	1.00			
Math 1b – Calculus, Series, and Differential Equations	1.00			
AM 21a – Mathematical Methods in the Sciences 1 (or Math 21a or 23a)	1.00			
AM 21b – Mathematical Methods in the Sciences 2 (or Math 21b or 23b)	1.00			
Mathematics Elective (if you started in AM/Math 21a)				
1.	1.00			
Probability and Statistics				
ES 150 – Intro to Probability with Engineering Applications	1.00			
Physics				
AP 50a – Physics as a Foundation for Sci & Eng 1 (or PS 12a, Physics 15a or 16)		1.00		
AP 50b - Physics as a Foundation for Sci & Eng 2 (or PS 12b or Physics 15b)		1.00		
Science Electives See list on page 3				
1.		1.00		
2.		1.00		
Computer Science CIRCLE ONE				
CS 50 – Intro to Computer Science 1			1.00	
CS 51 – Intro to Computer Science 2				
CS 61 – Systems Programming & Machine Organization				
Sophomore Forum				

REQUIRED COURSES (Circle course and % for course you are taking or plan to take in each category.)	**Math**	**Science**	**Engr. Topics**	**Semester** (Fall/Spring Year)
Electrical Engineering Core				
ES 52 – The Joy of Electronics – Part 1			1.00	_____
or ES 153 – Laboratory Electronics				
ES 154 – Electronic Devices & Circuits			1.00	_____
ES 156 – Signals & Systems			1.00	_____
Choose one:				
ES 173 – Intro to Electronic & Photonic Devices				
CS 141 – Computing Hardware			1.00	_____
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*			1.00	_____
ES 100hf – Engineering Design Projects			1.00	_____
TOTALS	**/4**	**/4**	**/12**	

* *For courses co-listed in another department, students must enroll in the Engineering Sciences offering. No more than two of Engineering Sciences 6, 50, 51, and 53 can count toward concentration credit. ES 96 or ES 227 must be taken in the junior year, prior to taking ES 100hf.*

Student signature

_____ Date: _____

Assistant/Director of Undergraduate Signature

_____ Date: _____

This plan does/does not meet the ABET distribution requirements

_____ Date: _____

Assistant Dean for Education

Mathematics Electives

- AM 104 – Series Expan & Complex Analysis
- AM 105 – Ordinary & Partial Diff Eqs
- AM 106 – Applied Algebra
- AM 107 – Graph Theory & Combinatorics
- AM 108 – Nonlinear Dynamical Systems
- AM 120 – Applied Lin Algebra & Big Data

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 61 - System Program & Machine Org
- 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 51 – Intro to Comp Science 2
- 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 – Intro to Environmental Science & Eng
- 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 128 – Comput. Solid & Structural Mech.
- ES 135 – Phys & Chem: In the Context of Energy & Climate
- ES 137 – Energy within Enviro Constraints
- ES 160 – Space Science & Engineering
- 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