

Plan of Study for the Electrical Engineering SB Concentration

Effective for Students Declaring the Concentration after July 1, 2018

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				
PS 12a – Mech from an Analytic, Num & Exp Perspective (or Physics 15a, 16, or AP 50a)		1.00		_____
PS 12b – E&M from an Analytic, Num & Exp Perspective (or Physics 15b, or AP 50b)		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				_____

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)
Sophomore Forum				
Electrical Engineering Core ES 152 – Circuits, Devices, and Transduction CS 141 – Computing Hardware ES 155 – Systems and Control ES 156 – Signals and Communications			1.00 1.00 1.00 1.00	_____ _____ _____ _____
Electrical Engineering Electives* See list on page 3 <i>Students should consult an advisor to select an appropriate set of Electrical/Engineering Electives</i> 1. 2. 3.			1.00 1.00 1.00	_____ _____ _____
Engineering (or Additional Electrical) Electives* See list on page 3 1. 2.			1.00 1.00	_____ _____
Engineering Design ES 96 – Engineering Problem Solving & Design Project* ES 100hf – Engineering Design Projects			1.00 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: _____

Associate/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 11 – Found & Frontiers of Modern Chem
or PS 1 - Chem Bonding, Energy, & Reactivity
- 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 128 – Intro to Biomedical Imaging & Sys
- BE 130 – Neural Control of Movement
- CS 61 - System Program & Machine Org
- 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 54 – Electronics for Engineers
- ES 151 – Applied Electromagnetism
- ES 153 – Laboratory Electronics
- ES 154 – Electronic Devices & Circuits
- ES 157 – 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 181 – Engineering Thermodynamics
- ES 190 – Intro to Materials Sci & Eng