Plan of Study for the Electrical Engineering SB Concentration

Effective for Students Declaring the Concentration after October 2026

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.

Please list your selected concentration courses in the schedule below:

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3	Fall 4	Spring 4

REQUIRED COURSES	Selected Courses
Mathematics Required (2-4 courses) *Begin according to placement:* Math 1a – Intro to Calculus (or Math Ma & Mb) Math 1b – Integration, Series, and Differential Equations Math 21a – Multivariable Calculus (or Math 22b) Math 21b – Linear Algebra & Differential Equations (or Math 22a)	
Probability and Statistics (1 course, required) ECE 150 – Probability with Engineering Applications	
Mathematics Elective (1 course, if you started in Math 21a or higher) 1.	
Physics (2 courses) PS 12a – Mechanics and Statistical Physics (or Phys 15a, 16, or AP 50a) PS 12b – Electromagnetism and Quantum Physics (or Phys 15b, or AP 50b)	
Science Electives (2 courses, see list on page 3) 1. 2.	

REQUIRED COURSES	Selected Courses
Computer Science (1 course) CS 32 – Computational Thinking & Problem Solving CS 50 – Intro to Computer Science CS 51 – Abstraction and Design in Computation CS 61 – Systems Programming & Machine Organization	
Electrical Engineering Core (4 courses) ECE 141 – Computing Hardware ECE 152 – Circuits, Devices, and Transduction ECE 155 – Systems and Control ECE 156 – Signals and Communications	
Electrical Engineering Electives (3 courses, see list on page 3) 1. 2. 3.	
Engineering (or Additional Electrical) Electives (2 courses, see list on page 3) 1. 2.	
Engineering Design (2 courses) ES 55 – Fundamentals of Engineering Design ES 100hf – Engineering Design Projects	

**No more than three of ESE 6, ECE 50, ES 51, ES 53, ENCE 50 can count toward concentration credit*
*** ES55 must be taken prior to taking ES 100hf. For the Class of 2028, ES55 must be taken in junior year. For the Class of 2029, ES55 may be taken in sophomore spring or junior fall.*

_____ _____
Student Signature Date

_____ _____
EE Concentration Approver Date

This plan does ☐ / does not ☐ meet the ABET distribution requirements

_____ _____
Office of Academic Programs Date:

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 109 – Intro to PDE and Applications
- 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
- CHEM 10 – Quantum & Stat Found of Chem
- PHYS 15c – Wave Phenomena
- ASTRO 16 – Stellar & Planetary Astro
- ASTRO 17 – Galactic & Extragalactic Astro

Upper Level Courses

- CHEM 160 – Quantum Chemistry
- PHYS 19 – Intro to Theoretical Physics
- PHYS 125 – Widely Applied Physics
- PHYS 143a – Quantum Mechanics I
- PHYS 143b – Quantum Mechanics II
- PHYS 153 – Electrodynamics
- PHYS 181 – Stat Mech & Thermodynamics

Electrical Engineering Electives

ECE 50 can only be taken for concentration credit during first or sophomore year. Not more than two from: ECE 50, CS 61, ES 170

- AP 195A – Intro to Solid State Physics
- BE 128 – Intro to Biomedical Imaging & Sys
- BE 129 – Intro to Bioelectronics
- BE 130 – Neural Control of Movement
- BE 131 – Neuroengineering
- CS 61 – System Program & Machine Org
- CS 1280 – Convex Optimization & App in ML
- CS 1430 – Computer Networks
- CS 1440r – Networks Design Projects
- CS 1840 – Intro to Reinforcement Learning
- CS 1890 – Autonomous Multi-Robot Systems
- CS 2490r – Tiny Machine Learning
- ECE 50 – Intro to Electrical Engineering
- ECE 143 – Computer Vision
- ECE 145 – Modern Electric Power Systems
- ECE 146 – Computer Architecture
- ECE 148 – Design of VLSI Circuits & Systems
- ECE 151 – Applied Electromagnetism
- ECE 154 – Electronic Devices & Circuits
- ECE 157 – Biological Signal Processing
- ECE 158 – Intro to Optimal Control & Estimation
- ECE 173 – Intro to Electronic & Photonic Dev
- ECE 177 – Micro Fabrication Laboratory
- ES 159 – Intro to Robotics
- ES 170 – Engineering Quantum Mechanics
- ES 176 – Intro to MEMS

Engineering Electives *(Incomplete List)*

For courses that are co-listed in another department, students must enroll in the Engineering Sciences offering. ESE 6 and ES 53 can only be taken for concentration credit during freshman or sophomore year

- CS 51 – Abstraction & Design in Computation
- CS 1240 – Data Structures & Algorithms
- CS 1750 – Computer Graphics
- CS 1790 – Design of Usable Interactive Sys
- CS 1810 – Machine Learning
- CS 1820 – Artificial Intelligence
- CS 1870 – Computational Linguistics
- ES 51 – Computer Aided Machine Design
- ES 53 – Quant Physiology or Bioengineering
- ES 111 – Intro to Scientific Computing
- ES 115 – Mathematical Modeling
- ES 120 – Intro to the Mechanics of Solids
- ES 121 – Intro to Optimization
- ES 125 – Mechanical Systems
- ES 190 – Intro to Materials Sci & Eng
- ES 231 – Energy Technology
- ESE 6 – Intro to Environmental Sci & Eng
- ESE 160 – Space Science & Engineering
- ESE 166 – State of the Art Instrument in Env Sci

Prerequisite Planning Table for the Electrical Engineering SB

	Typically Offered	Math	Chemistry	Physics	Other
Required Courses					
ECE 141	Fall				*CS 50*
ECE 150	Spring	**21a, Co: 21b**			
ECE 152	Fall	**1a,b**		**Co: B**	
ECE 155	Fall	**1a,b**			
ECE 156	Spring	**21a,b**			
ES 55	Fall & Spring				**Prior ES100**
ES 100HF	Fall-Spring				**ES 55**
Selected Electives					
AP 195A	Fall			*A,B,C*	*Quant Mech*
BE 128	Spring	**1b**		**B**	
BE 129	Spring				*ECE 50/152*
BE 130	Spring				
BE 131	Fall				*ECE 50/152 & LS*
CS 61	Fall				*CS 50*
CS 1280	Spring	*21a,b*			*Python*
CS 1430	Spring				*CS 50*
CS 144r	Spring				*CS 51, 1430, 1810*
CS 1840	Fall	**21b**			**ECE 150**
CS 1890	Spring				*CS 51*
CS 2490r	Fall				
ECE 50	Spring				
ECE 143	Fall	*21b*			*CS 51 or 61*
ECE 145	Spring	**21b**		**B**	
ECE 146	Spring				**ECE 141**
ECE 148	Spring				**ECE 141**
ECE 151	Spring	**21a**		**A,B**	
ECE 154	Spring				*ECE 152*
ECE 157	Fall	**21a,b**			*ECE 150 or 156*
ECE 158	Spring				*ECE 155*
ECE 173	Fall	**1b**		**A,B**	
ECE 177	Spring			**A,B**	
ES 159	Spring	**21a,b**		**A**	*CS 50*
ES 170	Spring	**21a,b**			
ES 176	Fall			**A,B**	*LS 1a or PS 1*

[1]Courses listed as Recommended Preparation, and not an enforced prerequisite, are shown in italics

[2]Courses marked with a "Co:" may be taken as a co-requisite

[3]Equivalent courses are accepted for prerequisites (e.g., Phys 15a, PS 12a, or AP50a all count for Physics A)