Plan of Study for the Electrical and Computer Engineering Track of AB Engineering Sciences Concentration

Effective for Students Declaring the Concentration after March 2026

DATE: _____ NAME: _____

CLASS: _____ EMAIL: _____

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

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 courses) *Begin according to placement:* Math 21a – Multivariable Calculus (or Math 22b) Math 21b – Linear Algebra & Differential Equations (or Math 22a)	
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)	
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 and Computer Engineering Core (5 courses) ECE 141 – Computing Hardware ECE 150 – Probability with Engineering Applications ECE 152 – Circuits, Devices and Transduction ECE 155 – Systems and Control ECE 156 – Signals and Communications	

REQUIRED COURSES	Selected Courses
Engineering Electives* (4 courses, see list on page 3) 1. 2. 3. 4.	

**No more than two of ESE 6,ECE 50, ES 51, and ES 53 can count toward concentration credit.*

_____ _____

Student Signature Date

_____ _____

ES AB – ECE Track Approver Date

Advisor indicate if a petition is needed: Yes ☐ No ☐

_____ _____

Director of Undergraduate Studies Date

Engineering Electives

Students choosing to concentrate in the *Electrical and Computer Engineering Track* in the *Engineering Sciences A.B. Program* have a broad set of *Engineering Electives* which they may take to satisfy their degree requirements.

The following courses may serve as *Engineering Electives,* only if taken during the First or Sophomore years. Only *one* of these courses may be used as an *Engineering Elective*:

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

The following courses are intended to serve as a *sampling* of allowed *Engineering Electives.* Other courses may be allowed (including 200-level courses): students should confer with their *Concentration Advisors* to determine the suitability of a course as an *Engineering Elective.*

- AM 104 – Series Expansions & Complex Analysis
- AM 105 – Ordinary & Partial Differential Equations
- AM 108 – Nonlinear Dynamical Systems
- AP 195A – Intro to Solid State Physics
- Chemistry 160 – Quantum Chemistry
- BE 128 – Intro to Biomedical Imaging & Sys
- BE 129 – Intro to Bioelectronics
- BE 130 – Neural Control of Movement
- BE 131 – Neuroengineering
- CS 51 – Abstraction & Design in Computation
- CS 61 – System Program & Machine Org
- CS 1280 – Convex Optimization & App in ML
- CS 1430 – Computer Networks
- CS 1440r – Networks Design Projects
- CS 1610 – Operating Systems
- CS 1750 – Computer Graphics
- CS 1840 – Intro to Reinforcement Learning
- CS 1890 – Autonomous Multi-Robot Systems
- CS 2490r – Tiny Machine Learning
- CS 2831 – Computer Vision
- 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 Devices
- ECE 177 – Microfabrication Laboratory
- ES 51 – Computer Aided Machine Design
- ES 120 – Intro to the Mechanics of Solids
- ES 121 – Intro to Optimization: Models & Methods
- ES 123 – Introduction to Fluid Mechanics & Transport Processes
- ES 159 – Intro to Robotics
- ESE 160 – Space Science and Engineering
- ESE 166 – State of the Art Instrumentation in Environmental Sciences
- ES 181 – Engineering Thermodynamics
- ES 190 – Intro to Materials Science & Engineering
- PHYS 143a – Quantum Mechanics 1
- PHYS 153 – Electrodynamics

Prerequisite Planning Table for the ES AB – ECE Track

	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**			
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 1440r	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)