Electrical Engineering Curriculum Checklist

Class of 2025

	First Year				
ECSE-1010	Introduction to ECSE [6]	4	ENGR-2350	Embedded Control	4
MATH-1010	Calculus I	4	MATH-1020	Calculus II	4
CSCI-1100	Computer Science I	4	PHYS-1100	Physics I	4
IHSS-####	Hum., Arts or Soc. Sci. Elective[9]	4		Science Elective	4
			ENGR-1200 OR ENGR-1400	Engineering Graphics & CAD [1] OR Engineering Communications [1]	1
	Second Year				
ECSE-2610	Computer Comp. & Operations	4	ECSE-2010	Electric Circuits [8]	4
PHYS-1200	Physics II	4	ECSE-2500	Engineering Probability [8]	3
MATH-2400	Intro. to Differential Equations	4	MATH-2010	Multivariable Calc & Matrix Algebra	4
	Hum., Arts or Soc. Sci. Elective	4		Hum., Arts or Soc. Sci. Elective	4
ARCH SEMESTER		**Third Year**		**Fall or Spring**	
ECSE-2110	Electrical Energy Systems	3	ECSE-2050	Intro. to Electronics [8]	4
ENGR-2050	Introduction to Eng. Design	4	ECSE-2100	Fields and Waves I [8]	4
STSS-4100	Prof Devt- Tech Issues & Solutions [1,3]	2	ECSE-2410	Signals and Systems [8]	3
	Hum., Arts or Soc. Sci. Elective	4	ECSE-2900	ECSE Enrichment Seminar	1
	Free Elective [2]	3-4		Math/Science Elective [7]	4
	Fourth Year				
ECSE-2210	Microelectronics Tech [8].	3		Restricted Elective [1,4,5]	3
ECSE-4900	Multidisc. Capstone Design [1]	3		Free Elective [1,2]	3-4
ENGR-4010	Prof Development - Leadership [1]	1		Free Elective [1,2]	3-4
	Lab Elective [1,4]	3		Free Elective (if needed)[2]	3-4
	Restricted Elective [1,4,5]	3		Hum., Arts or Soc. Sci. Elective	4
	Technical Elective [1,4,5]	3-4			

1 May be taken either term.
2 The free electives must total to at least 12 credits.
3 This course will be fulfilled from a list published at the start of each semester. For a list of courses that satisfy the Professional Development – Technical Issues & Solution requirement refer to the link "Professional Development Courses" on the Registrar's "Academic Planning" web page. It should be completed before the capstone design course.
4 It is recommended that students use electives to form a concentration. See the ECSE Web page for concentration listings.
5 No more than one Independent Study course may be used to when satisfying the combined Technical and Restricted Elective requirements.
6 May be replaced with ENGR-1100 Introduction to Engineering Analysis
7 Students who wish to take ENGR-1600 Materials Science as their Math/Science Elective must take CHEM-1100.
8 Core courses that are the prerequisites for 4000-level courses, offered in Fall and Spring terms annually. Students should take the courses as soon as their prerequisites are met.
9 HASS Inquiry must be taken in first year; suggested that HASS Communication Intensive be taken in first 3 semesters.

128 credits minimum

RESTRICTED ELECTIVE
Any 3 or 4 credit hour course with the designation ECSE-4xxx or ECSE-6xxx.

TECHNICAL ELECTIVE
Any 3- or 4-credit-hour course in engineering, mathematics, or science at the 4000 level or higher.

LAB ELECTIVES
ECSE 4090 Mechatronics
ECSE-4130 Electric Power Eng. Lab
ECSE-4220 VLSI Design
ECSE 4660 Internetworking of Things
ECSE-4760 Real-Time Cntrl & Comm.
ECSE-4770 Cptr H'ware Design
ECSE-4790 Microprocessor Systems
ENGR-4710 Mfg Proc & Systems Lab I
With prior approval, a special topics course (ECSE 496x) may be used as a Lab Elective

SCIENCE ELECTIVE
CHEM-1100 Chemistry I
BIOL-1010/1015 Introduction to Biology/Lab
BIOL-2120 Cell and Molecular Bio.

MATH/SCIENCE ELECTIVE
A 4-credit-hour course (or a 3-credit-hour course with a 1-credit-hour laboratory) in Science (ASTR, BIOL, CHEM, ERTH, PHYS) or Mathematics (MATH, MATP). An independent Study course cannot be used to satisfy this requirement.

Computer and Systems Engineering Curriculum Checklist

Class of 2025

First Year						
ECSE-1010	Introduction to ECSE [7]	4		ECSE-2610	Cptr. Comp. & Operations	4
CSCI-1100	Computer Science I	4		CSCI-1200	Data Structures	4
MATH-1010	Calculus I	4		MATH-1020	Calculus II	4
ENGR-1200 OR ENGR-1400	Engineering Graphics & CAD[1] OR Engineering Communications[1]	1		PHYS-1100	Physics I	4
IHSS-####	Hum., Arts or Soc. Sci. Elective[9]	4				
Second Year						
ENGR-2350	Embedded Control	4		ECSE-2010	Electric Circuits [8]	4
CSCI-2200	Foundations of Comp. Science	4		CSCI-2300	Intro to Algorithms	4
MATH-2400	Intro. to Differential Equations	4			Science Elective	4
PHYS-1200	Physics II	4			Hum., Arts or Soc. Sci. Elective	4
	ARCH SEMESTER	**Third Year**			**Fall or Spring**	
ECSE-2660	Cptr Arch, Nets, & Op Sys	4		ECSE-2050	Intro. to Electronics [8]	4
ENGR-2050	Intro. to Engineering Design	4		ECSE-2410	Signals & Systems [8]	3
MATH-2010	Multivar Calc & Matrix Algebra	4		ECSE-2500	Engineering Probability [8]	3
	Hum., Arts or Soc. Sci. Elective	4		ECSE-2900	Enrichment Seminar	1
				STSS-4100	Prof Devt- Tech Issues & Solutions [1,3,4]	2
					Hum., Arts or Soc. Sci. Elective	4
Fourth Year						
ENGR-4100	Prof Development - Leadership [1]	1		ECSE-4900	Multidisc. Capstone Design [1]	3
	Computer Eng Elective[1,4]	3-4			Free Elective[2]	3-4
	Restricted Elective[1,5,6]	3-4			Free Elective[2]	3-4
	Restricted Elective[1,5,6]	3-4			Free Elective (if needed) [2]	3-4
	Technical Elective[1,5,6]	3-4			Hum., Arts or Soc. Sci. Elective	4
	Free Elective[2]	3-4				

1 May be taken either term.
2 The free electives must total at least 12 credits.
3 This course will be fulfilled from a list published at the start of each semester. For a list of courses that satisfy the Professional Development – Technical Issues & Solution requirement refer to the link "Professional Development Courses" on the Registrar's "Academic Planning" web page. It should be completed before the capstone design course.
4 May be taken in the third year.
5 It is recommended that students use electives to form a concentration. See the ECSE Web page for concentration listings.
6 No more than one Independent Study course may be used when satisfying the combined Technical and Restricted Elective requirements.
7 May be replaced with ENGR 1100 Introduction to Engineering Analysis.
8 Core courses that are the prerequisites for 4000-level courses, offered in Fall and Spring terms annually. Students should take the courses as soon as their prerequisites are met.
9 HASS Inquiry must be taken in first year; suggested that HASS Communication Intensive be taken in first 3 semesters.

130 credits minimum

RESTRICTED ELECTIVE
Any 3 or 4 credit hour course with the designation ECSE-4xxx or ECSE-6xxx or CSCI-4xxx or CSCI-6xxx.

TECHNICAL ELECTIVE
Any 3- or 4-credit-hour course in engineering, mathematics, or science at the 4000 level or higher.

SCIENCE ELECTIVE
BIOL-1010/1015 Introduction to Biology +Lab
BIOL-2120 Intro to Cell and Molecular Biology
CHEM-1100 Chemistry I

COMPUTER ENGINEERING ELECTIVES
ECSE 4660 Internetworking of Things
ECSE-4670 Computer Comm. Networks
ECSE-4740 Parallel Computing
ECSE-4770 Computer Hardware Design
ECSE-4790 Microprocessor Systems
CSCI-4380 Database Systems
CSCI-4440 Software Design & Doc
With prior approval, a special topics course (ECSE 496x) may be used as a Computer Engineering Elective

EE and CSE Dual Major Curriculum Checklist **Class of 2025**

Fall					First Year	Spring			
ECSE-1010	Intro. to ECSE[5]	4			ENGR-1200 OR ENGR-1400	Eng. Graphics & CAD[1] OR Eng. Communications[1]	1		
MATH-1010	Calculus I	4			MATH-1020	Calculus II	4		
CSCI-1100	Computer Science I	4			PHYS-1100	Physics I	4		
IHSS-XXXX	Hum., Arts or Soc. Sci. El. [6]	4			CSCI-1200	Data Structures	4		
						Hum., Arts or Soc. Sci. El. [6]	4		
Fall					Second Year	Spring			
ENGR-2350	Embedded Control	4			ECSE-2610	Cptr. Comp & Operations	4		
MATH-2400	Intro. to Differential Eqns.	4			ECSE-2010	Electric Circuits	4		
CSCI-2200	Foundations of Comp. Sci.	4			MATH-2010	Multivar Calc & Matrix Alg	4		
PHYS-1200	Physics II	4			CSCI-2300	Intro to Algorithms	4		
Summer Arch Semester					Third Year	Spring or Fall			
ENGR-2050	Intro. to Eng. Design	4			ECSE-2900	ECSE Enrichment Seminar	1		
ECSE-2660	Cptr Arch, Nets, & Op Sys	4			ECSE-2050	Intro. to Electronics	4		
	Math/Science Elective[1,4]	4			ECSE-2100	Fields & Waves I	4		
	Science Elective[4]	4			ECSE-2410	Signals & Systems	3		
	Hum., Arts or Soc. Sci. El.	4			ECSE-2500	Engineering Probability	3		
					ECSE-2110	Electrical Energy Systems	3		
Fall					Fourth Year	Spring			
ENGR-4010	Professional Devel. III[1]	1				Professional Devel. II[1,2]	2		
ECSE-2210	Microelectronics Tech.	3			ECSE-4900	Multidisc. Capstone Design [1]	3		
	Computer Eng Elective[1]	3-4				Restricted Elective[1,3]	3-4		
	Lab Elective[1,3]	3-4				Restricted Elective[1,3]	3-4		
	Technical Elective[1,3]	3-4				Hum., Arts or Soc. Sci. El.	4		
	Hum., Arts or Soc. Sci. El.	4							

1. May be taken either term.
2. May be taken in the third year
3. It is recommended that students use electives to form a concentration. See the ECSE web page for concentration listings.
4. Students who wish to take ENGR-1600 Materials Science as their Math/Science Elective must take CHEM-1100.
5. May be replaced with ENGR-1100 Introduction to Engineering Analysis.
6. HASS Inquiry must be taken in first year; suggested that HASS Communication Intensive be taken in first 3 semesters.

135 credits minimum

RESTRICTED ELECTIVE

Any 3 or 4 credit hour course with the designation ECSE-4xxx, ECSE-6xxx, CSCI-4xxx, or CSCI-6xxx.

TECHNICAL ELECTIVE

Any 3 or 4 credit hour course in engineering, mathematics, or science at the 4000 level or higher.

MATH/SCIENCE ELECTIVE

A 4-credit-hour course (or a 3-credit- hour course with a 1-credit-hour laboratory) in Science (ASTR, BIOL, CHEM, ERTH, PHYS) or Mathematics (MATH, MATP). An independent Study course cannot be used to satisfy this requirement.

COMPUTER ENGINEERING ELECTIVES

ECSE 4740 - Applied Parallel Computing for Engineers
ECSE-4670 Comp. Comm. Networks
ECSE-4750 Computer Graphics ECSE-4790 Microprocessor Systems CSCI-4380 Database Systems
CSCI-4440 Software Dsg & Doc
With prior approval, a special topics course (ECSE 496x) may be used as a Computer Engineering Elective

LAB ELECTIVES

ENGR-4710 Adv. Manufacturing Lab I ECSE 4090 Mechatronics
ECSE-4160 Electric Power Eng. Lab ECSE-4220 VLSI Design
ECSE-4760 Real-Time Cntrl & Comm. ECSE-4770 Cptr H'ware Design
ECSE-4790 Microprocessor Systems
With prior approval, a special topics course (ECSE 496x) may be used as a Lab Elective

SCIENCE ELECTIVE

CHEM-1100 Chemistry I
BIOL-1010/1015 Introduction to Biology/Lab
BIOL-2120 Cell and Molecular Bio.

CSE and Computer Science Dual Major Curriculum Checklist Class of 2025

**Please note using a template form a different class year other than your own may result in graduation delays. Please discuss all templates with your advisors in each department.

	First Year						
CSCI-1100	Computer Science I	4		CSCI-1200	Data Structures	4	
ECSE-1010	Intro. to ECSE[3]	4		MATH-1020	Calculus II	4	
ENGR-1200 OR ENGR-1400	Eng. Graphics & CAD[1] OR Eng. Communications[1]	1		BIOL-1010	Intro to Biology	3	
MATH-1010	Calculus I	4		BIOL-1015	Intro to Biology Lab	1	
IHSS-XXXX	Hum., Arts or Soc. Sci. Elective[7]	4			Hum., Arts or Soc. Sci. Elective[7]	4	
	Second Year						
CSCI-2200	Foundations of Comp. Sci.	4		CSCI-2300	Intro to Algorithms	4	
ECSE-2610	Cptr. Comp. & Operations	4		ECSE-2010	Electric Circuits	4	
MATH-2400	Intro. to Differential Equations	4		ENGR-2350	Embedded Control	4	
PHYS-1100	Physics I	4		PHYS-1200	Physics II	4	
				ECSE-2900	ECSE Enrichment Seminar	1	
	Summer Arch Semester		**Third Year**		**Fall or Spring**		
ECSE-2660	Cptr Arch, Nets, & Op Sys	4		ECSE-2410	Signals & Systems	3	
ENGR-2050	Intro. to Eng. Design	4		MATH-2010	Multivar Calc & Matrix Alg.	4	
CSCI-2600	Principles of Software[5]	4		ECSE-2500	Engineering Probability	3	
	CSCI Option/Capstone[1]	3-4		ECSE-2050	Introduction to Electronics	4	
					Hum., Arts or Soc. Sci. Elective	4	
	Fourth Year						
ENGR-4010	Professional Development III	1			Professional Development II[1,2]	2	
CSCI-4430	Programming Languages[4]	4		ECSE-4900	Multidisc. Capstone Design	3	
	CSCI Option/Capstone/Computer Engineering Elective[1,6]	3-4			CSCI Option/Capstone[1]	3-4	
	CSCI Option/Capstone[1]	3-4		CSCI-4210	Operating Systems[5]	4	
	Hum., Arts or Soc. Sci. Elective	4			Hum., Arts or Soc. Sci. Elective	4	

[1] May be taken either term.

[2] May be taken in the third year.

[3] May be replaced with ENGR-1100 Introduction to Engineering Analysis.

[4] This course is offered exclusively in the fall semester.

[5] Only offered ARCH and Spring semesters

[6] One of your 4 CSCI Options should be from the list of the Computer Engineering Electives listed below

[7] HASS Inquiry must be taken in first year; suggested that HASS Communication Intensive be taken in first 3 semesters.

CSCI OPTION

Four courses of three or four credits at the 4000 or 6000 level. For this purpose, courses in the series CSCI 4xxx, CSCI 6xxx, ECSE 46xx, and ECSE 47xx may be used, excluding ECSE 4630, ECSE 4640, ECSE 4720, and reading and independent study courses. The Pass/No Credit option cannot be used for these courses.

CSCI CAPSTONE

A culminating experience (note that the P/NC option cannot be used for any of the courses below):

The coursework concentration capstone consists of three 4000 or 6000 level CSCI (or CSCI cross listed) courses in one of the following topic areas: (a) Theory & Algorithms, (b) Systems & Software, (c) Artificial Intelligence & Data, (d) Vision, Graphics, Robotics & Games

All 4000 and 6000 level CSCI catalog courses that are not part of the required undergraduate core are assigned to one or more topic areas. Similarly, all 4000 and 6000 level special topics courses (i.e., with 496x, 497x, 696x, 697x course numbers) are assigned to one or more topic areas when the given course is listed. Note that the courses taken also count as Computer Science (CS) Option courses

COMPUTER ENGINEERING ELECTIVES

ECSE 4660 Internetworking of Things
ECSE-4670 Computer Comm. Networks
ECSE-4740 Parallel Computing
ECSE-4770 Computer Hardware Design
ECSE-4790 Microprocessor Systems
CSCI-4380 Database Systems
CSCI-4440 Software Design & Doc