Department of Electrical and Computer Engineering
Cullen College of Engineering

Electrical Engineering Official Degree Plan
Declaring Concentration

For the Electrical Engineering (EE) degree, each student must choose a concentration area. To declare a concentration area, each student is required to present a plan that includes the selection of the concentration and elective courses, and to ensure that all prerequisite credits, whether completed at UH or elsewhere, are properly accounted within the UH database. Additionally, this plan identifies courses that are only offered once a year and places them into an appropriate semester. The advising meeting also allows students to ask questions about the concentration area.

Step 1: Prepare for Your Appointment

1. Complete the attached degree plan form by reflecting your degree progress using MyUH Advisement Report.
2. Select your electives. View the UH Course Catalog to review course descriptions and requirements.
3. Use the semester-to-semester plan template to map out your remaining semesters, using the ECE expected course offerings to plan.
4. Bring your notes & questions to your appointment to collaborate with your faculty advisor.

Step 2: Schedule an Appointment with a Faculty Advisor According to Your Selected Concentration Area (EE) or Degree Major (CpE)

- **Applied Electromagnetics:** Dr. David Jackson (djackson@uh.edu)
- **Computer & Embedded Systems and CpE Majors:** Dr. Yuhua Chen (yuhuachen@uh.edu)
- **Electronics:** Dr. Paul Ruchhoeft (pruchhoe@central.uh.edu)
- **Nanosystems:** Dr. Stanko Brankovic (srbranko@central.uh.edu)
- **Power:** Dr. Harish Krishnamoorthy (hskrishn@uh.edu)
- **Signals, Communications & Controls:** Dr. Bhavin Sheth (brsheth@central.uh.edu)

Step 3: Get Your Degree Plan Approved and Submit to the ECE Office

- Save a copy of your approved degree plan and semester to semester plan document for your student records.
- Submit your faculty advisor signed degree plan form as part of your Senior Design Checklist HERE.
- Follow up with your faculty advisor to discuss any changes.

Areas of Concentration and Elective Course Selection

Concentration area courses in **bold text** are required (including labs, if also in bold text) and must be included in the total concentration electives required for EE degree majors.

Applied Electromagnetics

ECE 3318	**Applied Electricity & Magnetism**
ECE 5317/5113	**Microwave Engineering**
ECE 5318/5114	**Antenna Engineering**
ECE 3364	Circuits & Systems
ECE 3366	Introduction to DSP
ECE 3456	Analog Electronics
ECE 4339/4119	Physical Principles of Solid-state Devices
ECE 4363/4113	Energy Conversion Devices
ECE 5371/5117	Advanced Telecommunications Engineering
ECE 5319	Introduction to Nanotechnology
ECE 5358	Modern Optics & Photonics

Electronics

ECE 3364	**Circuits & Systems**
ECE 3456	**Analog Electronics**
ECE 3457	**Digital Electronics**
ECE 4339/4119	**Phys. Principles of Solid-state Devices**
ECE 3318	Applied Electricity & Magnetism
ECE 5317/5113	Microwave Engineering
ECE 5318/5114	Antenna Engineering
ECE 5319	Introduction to Nanotechnology
ECE 5320	Introduction to Nanomaterials Engineering
ECE 5321	Design & Fabrication of Nanoscale Devices
ECE 5340	Introduction to Well-Logging Techniques
ECE 5356	CMOS Analog Integrated Circuits
ECE 5358	Modern Optics & Photonics

Power

ECE 3318	**Applied Electricity & Magnetism**
ECE 3364	**Circuits & Systems**
ECE 4363/4113	**Energy Conversion Devices**
ECE 5377/5127	**Power Systems Analysis**
ECE 4375/4115	Automatic Control Systems
ECE 5335/5115	State-Space Engineering
ECE 5380/5180	Power Electronics & Electric Devices
ECE 5388	Renewable Energy Technology

Signals, Communications & Controls

ECE 3366	**Introduction to DSP**
ECE 5371/5117	**Advanced Telecomm. Engineering**
ECE 4375/4115	**Automatic Controls Systems**
ECE 3364	Circuits & Systems
ECE 4437	Embedded Microcomputer Systems
ECE 5317/5113	Microwave Engineering
ECE 5318/5114	Antenna Engineering
ECE 5330	Introductions to Robotics
ECE 5335/5115	State-Space Engineering
ECE 5440	Advanced Digital Design
ECE 5451	Internetworking
ECE 5357	Introduction to Cybersecurity
ECE 5338	Robotics & ROS
ECE 5311	Introduction to Machine Learning

Computer & Embedded Systems

(ECE 4437 or	***Embedded Microcomputer Systems***
	OR
ECE 5440	***Advanced Digital Design)***
ECE 5367	**Intro. to Computer Architect. & Design**
COSC 1437	**Introduction to Programming**
ECE 3366	Introduction to DSP
ECE 3456	Analog Electronics
ECE 3457	Digital Electronics
ECE 4375/4115	Automatic Control Systems
ECE 4437	Embedded Microcomputer Systems
ECE 5330	Introduction to Robotics
ECE 5440	Advanced Digital Design
ECE 5451	Internetworking
ECE 5357	Introduction to Cybersecurity
ECE 5338	Robotics & ROS
ECE 5311	Introduction to Machine Learning
ECE 5436	Advanced Microprocessor
COSC 2436	Programming & Data Structures

Nanosystems

ECE 4339/4119	**Phys. Principles of Solid-state Devices**
ECE 5319	**Introduction to Nanotechnology**
ECE 5320	**Intro. to Nanomaterials Engineering**
ECE 5321	**Design & Fab. of Nanoscale Devices**
ECE 3318	Applied Electricity & Magnetism
ECE 3364	Circuits & Systems
ECE 4363/4113	Energy Conversion Devices
ECE 5317/5113	Microwave Engineering
ECE 5318/5114	Antenna Engineering
ECE 5356	CMOS Analog Integrated Circuits
ECE 5380/5180	Power Electronics & Electric Devices

Technical Elective Options

Students entering the program as of FALL 2026 must take one of the listed MATH/PHYS courses to satisfy the technical elective requirement:

PHYS 3312	Modern Optics
PHYS 3315	Modern Physics I
MATH 3355	Vector Analysis
MATH 3364	Complex Analysis
MATH 4364	Numerical Analysis

IMPORTANT NOTE: ONLY students who began the program PRIOR TO FALL 2026 may be eligible, with program advisor/director approval, to apply one of the options below towards the technical elective requirement:

MECE 2334	Introduction to Thermodynamics
MECE 3400	Introduction to Mechanics
ECE ****	Choice of 3000 - 5000 level ECE elective

Concentration Degree Plan: Electrical Engineering

Name: _____ PSID:_____ Date:_____

ECE Base

UH	TR		
☐	☐	ENGI 1100	Introduction to Engineering
☐	☐	ENGI 1331	Computing for Engineers
☐	☐	ENGI 2304	Technical Communications
☐	☐	ECE 2201	Circuits Analysis I
☐	☐	ECE 2202	Circuit Analysis II
☐	☐	ECE 2100	Circuit Analysis Lab
☐	☐	ECE 3331	Programming Appl. in ECE
☐	☐	ECE 3441	Digital Logic Design
☐	☐	ECE 3155	Electronics Lab
☐	☐	ECE 3355	Electronics
☐	☐	ECE 3337	Signals & Systems Analysis
☐	☐	ECE 3317	Applied EM Waves
☐	☐	ECE 3436	Microprocessor Systems
☐	☐	ECE 3340	Numerical Methods
☐	☐	INDE 2333	Engineering Statistics

Mathematics

☐	☐	MATH 2413	Calculus I
☐	☐	MATH 2414	Calculus II
☐	☐	MATH 2415	Calculus III
☐	☐	MATH 3321	Engineering Mathematics
		OR	
		(MATH 3331	Ordinary Differential Equations
		AND	
		MATH 2318)	Linear Algebra

Science

☐	☐	CHEM 1311	Fundamentals of Chemistry
☐	☐	CHEM 1111	Fundamentals of Chemistry Lab
☐	☐	PHYS 2325	University Physics I
☐	☐	PHYS 2125	University Physics Lab I
☐	☐	PHYS 2326	University Physics II
☐	☐	PHYS 2126	University Physics Lab II

State Core Requirements

Communications (6 Hours)

☐	☐	ENGL 1301	First Year Writing I
☐	☐	ENGL 1302	First Year Writing II

American History (6 Hours)

☐	☐	HIST 1301	The United States to 1877
☐	☐	HIST 1302	The United States since 1877

Government/Political Science (6 Hours)

☐	☐	GOVT 2305	U.S. Government
☐	☐	GOVT 2306	U.S. & TX Constitution & Politics

Approved Core (6 hours)

☐	☐	ECON 2302	Social & Behavioral Sciences
☐	☐	ENGI 2304	Writing in the Discipline
☐	☐	_____	Language, Philosophy & Culture
☐	☐	_____	Creative Arts

Category 1: Concentration Area

- EE students must complete the required concentration courses, shown in bold, and chose their remaining courses from their concentration area list
- Labs shown in bold are also required courses
- We require a total of **6 concentration electives**

Concentration Area: _____

	Course Number	Course Name
☐	_____	_____
☐	_____	_____
☐	_____	_____
☐	_____	_____
☐	_____	_____
☐	_____	_____

Category 2: Elective Courses

EE students must choose

- 2 ECE Electives (ECE elective be any ECE 3000 - 5000 ECE course)
- 1 Technical Elective (select one from the technical course elective options)

	Course Number	Course Name	
☐	_____	_____	(ECE Elective)
☐	_____	_____	(ECE Elective)
☐	_____	_____	(Tech Elective)

Category 3: ECE Labs

EE students are required to complete 3 ECE labs.

- ECE labs will come from concentration and/or elective course selections.
- 4 credit electives include a lab hour (Ex: ECE 5440)
- 1 credit courses partner with many 3 credit ECE elective options (Ex: ECE 4375/4115)

	Course Number	Course Name	
☐	_____	_____	(ECE Lab)
☐	_____	_____	(ECE Lab)
☐	_____	_____	(ECE Lab)

ECE Capstone Design

Students must meet with and obtain the signature of their concentration faculty advisor before enrolling in ECE 4335. Check Capstone Design website for details.

☐	ECE 4335	Capstone Senior Design I
☐	ECE 4336	Capstone Senior Design II

Rules You Need to Know:

- **C– Rule:** COE requires a grade of C– or better for credit in any mathematics, science, or engineering course that applies toward the bachelor's degree. A C– is required for any mathematics, science, or engineering course used as a prerequisite.
- Last 30 hours must be exclusively completed at UH
- **Maximum** of 66 lower-level transfer hours may be applied towards UH degree
- **Maximum Number of Attempts:** COE does not allow a student to attempt Engineering courses more than two times and science or mathematics more than three times
- **Minimum of a 2.25 GPA** in cumulative, major, and minor GPA to graduate

*UH- Courses taken at UH
*TR- Transfer courses taken at another institution

IF SUBMITTING AS PART OF YOUR SENIOR DESIGN REGISTRATION, PLEASE BE AWARE OF THE FOLLOWING.

ECE 4335 ENROLLMENT REQUIREMENTS

- Must be within one year of graduation and able to complete all remaining degree requirements within the next two semesters without exceeding 19 credit hours per term.
- Must have successfully completed the prerequisite courses: ECE 3355, ECE 3155, ECE 3317, ECE 3436, and ECE 3337.
- Must have completed all core curriculum requirements.
- Must have transferred and applied all outstanding degree requirements completed at other institutions.
- Students may not self-register for ECE 4335; program advisors will complete registration after prior term grades are posted and the checklist is received.
- ***Submit this faculty advisor signed degree plan form as your Senior Design Checklist HERE.***

I have read and agree to the requirements above and will meet them to graduate from the program. I understand that I must declare my concentration before being approved to register for senior design.

Student ID Number	Student Name	Student Signature	Today's Date

I met with student to discuss their remaining concentration and elective requirements. The student understands that final confirmation of accuracy must be obtained from their program advisor.

Faculty Advisor's Name	Faculty Advisor's Signature	Today's Date

Department of Electrical and Computer Engineering

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Updated as of 04/07/2026

Semester to Semester Plan

Name ______________________________ Projected Graduation Date ______________________
Cougar ID ______________________________ *Semester* *Year*
Degree Program ______________________________

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours

Semester:

Course Title	Credit Hours