

**Electrical Engineering
Career Plan Electives
(2025-2026 catalog year)**

Will you start working immediately after graduation in industry, the government sector or non-profit or will you apply to a graduate program (MS, PhD, law, MBA, medical school)?

We recognize it is difficult to decide and plan on what you will be involved in and do as a professional for many decades in the future. Consider what drives you; your interests and passion could inform your decision. Does working on wireless communication or power systems or radio frequency (RF) systems excite you? Or is it Microelectronics or Control or Signal Integrity? The answers to these questions can help you decide on what elective courses to take.

You may have already participated or participating in research with faculty or may have done an internship with a company or in a government lab. Those experiences can help you decide on your area of specialization within electrical engineering. You may also wish to broaden your scope of knowledge and opportunities by taking some courses from other disciplines that are not necessarily engineering or science. Those could be from finance, management, marketing etc.

Based on your chosen specialization you will select 18 hours of career plan elective courses. If you wish, you can select all your career plan elective courses from a list of ELCT courses (all ELCT courses numbered 430 and higher). You also have the option to take up to **6** credit hours of non-ELCT courses at the 300-level or higher with [department approval](#).

Current ELCT Elective Courses

Course #	Course Title:	Semester:
ELCT 430	Industrial Controls	Fall
ELCT 432	Fundamentals of Communication Systems	Fall
ELCT 451	Power Systems Design and Analysis	Fall
ELCT 510	Photovoltaic Materials and Devices	Spring
ELCT 521	Introduction to Microwave Engineering	Spring
ELCT 531	Digital Control Systems	Spring
ELCT 533	System Health Management	Spring
ELCT 553	Electromechanical Energy Conversion	Spring
ELCT 554	Integration of Photovoltaics in Modern Power Systems	Spring or Fall
ELCT 562	Wireless Communications	Spring
ELCT 563	Semiconductor Devices for Power, Communications and Lighting	Fall
ELCT 564	RF Circuit Design for Wireless Communications	Fall
ELCT 572	Power Electronics	Fall
ELCT 574	Semiconductor Materials & Device Characterization	Fall or Spring

*Courses on list may change or may not be offered every semester or every year as indicated

Sample Career Plans Examples

Here are some sample Career Plan examples of courses based on specialization areas. These should be considered as examples and not as rules or directions. You will receive guidance during the advisement process and we recommend speaking with one of the department's [Faculty Advising Fellows](#) about this.

For Specialization in

Wireless Communications and RF Circuits/Systems

ELCT 432	Fundamentals of Communication Systems
ELCT 510	Photovoltaic Materials and Devices
ELCT 521	Introduction to Microwaves
ELCT 562	Wireless Communications
ELCT 563	Semiconductor Devices for Power, Communications and Lighting
ELCT 564	RF Circuit Design for Wireless Communications

Power, Energy and Control (Power Electronics; Control & Automation)

ELCT 430	Industrial Controls
ELCT 451	Power Systems Design and Analysis
ELCT 531	Digital Control Systems
ELCT 554	Integration of Photovoltaics in Modern Power Systems
ELCT 563	Semiconductor Devices for Power, Communications and Lighting
ELCT 572	Power Electronics

Electronic Devices and Materials (Microelectronics & Signal Integrity System)

ELCT 510	Photovoltaic Materials and Devices
ELCT 521	Introduction to Microwaves
ELCT 563	Semiconductor Devices for Power, Communications and Lighting
ELCT 564	RF Circuit Design for Wireless Communications
ELCT 554	Integration of Photovoltaics in Modern Power Systems
ELCT 572	Power Electronics

Non ELCT Courses and Other Specializations

You can develop your own specialization by choosing the appropriate ELCT career plan electives. In addition, you can take up to **6** credit hours of courses from departments outside of ELCT e.g., courses on software, business, marketing with the department's approval. Non-ELCT courses that have been preapproved by the department are listed below. **Please be aware that courses may have prerequisites that you may need to meet.** To request approval of courses not on this list, contact the [Electrical Engineering Department](#)

Non-ELCT Course List

AESP 350	Aerospace Systems
CSCE 317	Computer Systems Engineering
CSCE 416	Introduction to Computer Networks
CSCE 513	Computer Architecture
CSCE 516	Computer Networks
CSCE 548	Building Secure Software
CSCE 552	Computer Game Development
CSCE 567	Visualization Tools
CSCE 574	Robotics
CSCE 587	Big Data Analytics
ECHE 310	Introductory Chemical Engineering Thermodynamics
ECHE 311	Chemical Engineering Thermodynamics
ECHE 567	Process Safety, Health and Loss Prevention
ECON 421	Engineering Economics
EMCH 310	Dynamics

EMCH 354	Heat Transfer
EMCH 371	Materials
EMCH 441	Automotive System Fundamentals
EMCH 550	Introduction to Nuclear Safeguards
EMCH 552	Introduction to Nuclear Engineering
EMCH 553	Nuclear Fuel Cycles
EMCH 555	Radiation Detection and Instrumentation
EMCH 556	Introduction to Risk Analysis and Reactor Safety
EMCH 557	Introduction to Radiation Shielding and Sources
EMCH 558	Introduction to Nuclear Reactor Systems
EMCH 573	Introduction to Nuclear Materials
ENCP 460	Special Topics in Engineering and Computing
ENCP 530	Cases in Technology Feasibility Analysis
ENCP 533	Legal Aspects of Engineering and Innovation
FINA 333	Finance and Markets
MATH 374	Discrete Structures
MATH 524	Nonlinear Optimization
MATH 526	Numerical Linear Algebra
MATH 527	Numerical Analysis
MATH 544	Linear Algebra
MATH 546	Algebraic Structures
MATH 550	Vector Analysis
MATH 574	Discrete Mathematics
MGMT 371	Principles of Management
MKTG 350	Principles of Marketing
MKTG 455	Marketing Communications and Strategy
MKTG 457	Introduction to Sales
MUSC 336	Introduction to Computer Music
MUSC 365	An Introduction to Audio Recording Techniques
PHYS 306	Principles of Physics III
PHYS 307	Introduction to Modern Physics
PHYS 599	Topics in Physics

Military Courses for those students participating in program.

***Only 1 course from this list below may count to fulfill the requirement.**

AERO 301 - Leading People and Effective Communication
AERO 302 - Leading People and Effective Communication II
NAVY 301 - Navigation/Naval Operations I
NAVY 302 - Navigation/Naval Operations II
NAVY 401 - Naval Leadership and Management I
NAVY 402 - Naval Leadership and Ethics
ARMY 401- The Army Officer and the Profession of Arms I
ARMY 402- The Army Officer and the Profession of Arms II