Electrical Engineering
Career Plan Electives
(Prior to 2022-2023 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 your 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.

Sample Career Plans

Here are some sample Career Plan 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 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 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 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 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 313	Embedded 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 567	Process Safety, Health and Loss Prevention
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
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
MGMT 371	Principles of Management
MKTG 350	Principles of Marketing
MKTG 455	Marketing Communications and Strategy
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