



2026-2027

Electrical Engineering

GUIDEBOOK

CHANGING LIVES.
CHANGING THE WORLD.

UE University
of Evansville

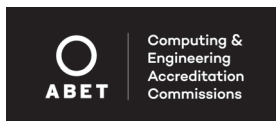
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Electrical Engineering
PROGRAM GUIDEBOOK

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Webpage
evansville.edu/electrical



The Electrical Engineering program at the University of Evansville is accredited by the Engineering Accreditation Commission of ABET; abet.org.

Revised 2026

Program Overview and Objectives

Electrical engineers use theory and design to manage electrical systems and devices that power our world. Technology is ever-changing, shaping the way we engage with people and the environment. These evolving interactions between society and devices make the electrical engineering field dynamic, challenging, and exciting. The Electrical Engineering program at UE introduces students to this complex field while inspiring lifelong curiosity and learning.

In accordance with the EAC-ABET accreditation criteria, the faculty and the Electrical Engineering Advisory Council have established program educational objectives and student outcomes for students majoring in Electrical engineering at the University of Evansville. The purpose of these program education objectives is to ensure that graduates of the program are adequately prepared to enter the practice of electrical engineering. Recognizing that the performance of students and graduates is an important consideration in the evaluation of an institution, a system of ongoing assessment is conducted by the faculty to continuously improve the effectiveness of the program.

"Graduates" are defined as Electrical Engineering alumni within 3-5 years of graduation.

- **Program Educational Objective 1:** Graduates shall be engaged in a professional career in electrical engineering or a related field, and/or be pursuing advanced study. This involves recognizing the necessity of lifelong learning and adapting to a changing technological landscape.
- **Program Educational Objective 2:** Graduates shall be engaged in applications of technical problem-solving and effective communication, working successfully as individuals or within multidisciplinary teams.
- **Program Educational Objective 3:** Graduates shall be active, ethical participants in their professional community, demonstrating an awareness of the global, societal, and environmental impact of engineering solutions.

"Students" are defined as Electrical Engineering students at the time of graduation from the University of Evansville.

- **Student Outcome 1:** an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

- **Student Outcome 2:** an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- **Student Outcome 3:** an ability to communicate effectively with a range of audiences
- **Student Outcome 4:** an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- **Student Outcome 5:** an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- **Student Outcome 6:** an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- **Student Outcome 7:** an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

In addition to strong technical skills, today's electrical engineers in the global marketplace must be adept at working with other people who have very different professional backgrounds and who may be from other countries with different cultures. The University of Evansville is helping engineers meet that challenge by providing students with a strong liberal arts background and providing an opportunity for an international experience at Harlaxton College, our study abroad center in England.

The Electrical Engineering program at UE provides a firm foundation in mathematics, natural science, basic engineering analysis, and design. Students also receive much technical instruction in electric circuit analysis, C++ programming language, computer-aided simulation, and logical design of digital circuits. The program incorporates several laboratories in classes to emphasize the use of computers and basic instrumentation common to the profession.

The Electrical Engineering curriculum is typical of most EAC-ABET accredited colleges and universities. What differentiates UE's program from larger university programs is the following:

- Students have the opportunity to study abroad at Harlaxton College in England and still complete their Electrical Engineering degree in eight semesters.
- Class sizes are small, allowing students to design projects and have a personal connection with their professors.

- The faculty is dedicated to teaching, which gives the program great flexibility. Course content is kept up-to-date, and innovative instruction techniques, such as interdisciplinary team projects, cooperative learning, and concurrent engineering, are used in the classroom.
- Emphasis is placed on preparing students to enter the practice of electrical engineering upon graduation.
- A personalized co-op program, featuring alternating terms of paid, full-time professional employment and University attendance, is available.
- The University's size and diversity facilitates the ability of Engineering students to interact with students and faculty in other programs, thus allowing intellectual and social interchange.
- Students are mentored to develop a love of learning and discovery that will motivate them to be lifelong learners.

Areas of Specialization

The Electrical Engineering program provides an introduction to nearly all areas of electrical engineering. The standard program is shown in Figure 1. During senior year, the three Electrical Engineering electives provide the student with the opportunity to develop some depth in a particular area.

Technical electives are available in electronics, computers, power systems, and systems engineering. Students who have an interest in continuing on to graduate school may select electives in advanced mathematics or physics.

Electronics Area

An understanding of the fundamentals of electronics is central to electrical engineering. All Electrical Engineering students are required to take two courses in electronics during their junior year and one course in their senior year.

Computer Area

Students in Electrical Engineering who wish to learn more about the computer area have a wide array of courses that they may take as technical electives. These include the following courses:

Course	Title
CS 215	Fundamentals of Programming II
CS 320	Computer Architecture
CS 355	Computer Graphics
CS 430	Artificial Intelligence
CS 475	Networks

CS 215, CS 320, and CS 475 are recommended courses.

Power Systems Area

There is one required power course in the Electrical Engineering curriculum, and some power concepts are presented in EE 215. In addition, students should take ENGR 213 - Dynamics as a technical elective. ME 362 - Thermodynamics is also useful.

Systems Engineering Area

The Systems Engineering area electives at UE are concerned with either control systems or communication systems. EE 410 - Analog Circuit Synthesis and EE 465 - Digital Control Systems are particularly recommended for this area. All Electrical Engineering students take EE 360 - Linear Control Systems and EE 470 - Communication Theory as part of their required coursework.

Undergraduate Research

There are numerous opportunities to conduct undergraduate research. All students are encouraged to participate in at least one undergraduate research project at some point during their four years at UE. Students who have an interest in graduate school are strongly encouraged to participate in multiple programs. Some of the undergraduate research opportunities available to students studying Electrical Engineering, Computer Engineering, or Computer Science are described below.

NSF Sponsored Research Experience for Undergraduates (REU)

This program is sponsored by the National Science Foundation. It allows undergraduates to participate in research projects at major research institutions across the country. Participating students typically have a B+ or better grade point average and have achieved junior status. Most REUs provide a stipend (about \$2,000 to \$3,000 for 10 weeks) and some provide a housing or moving allowance. All REUs take place during the summer. For more information, visit nsf.gov/crssprgm/reu/index.jsp.

UE Sponsored Undergraduate Research

The University of Evansville also sponsors summer research projects that typically provide a housing allowance or a stipend (about \$2,000). Almost all academic areas participate in these projects that are awarded to students on a competitive basis. All projects result in a student publication or presentation at a national or regional conference.

Special Topics and Independent Study

Many professors are willing to sponsor research projects during the school year. Students typically register for EE 498 or CS 498 and receive one to three hours of credit for such study.

National Competition Projects

Electrical Engineering students participate in several regional and national competitions, and all students (including freshmen) are eligible to participate in these projects. The southeast region of the Institute of Electrical and Electronics Engineers sponsors a robot competition each year. This is a team project and is usually completed as part of the senior design. Trinity University in Connecticut sponsors a national firefighting robot competition in which a robot must find its way through a maze, locate a candle, and extinguish it.

Co-op and Intern Programs

Electrical Engineering majors are encouraged to participate in cooperative education (co-op program) or internships during their time at UE. These programs offer students the opportunity to gain industrial experience working as an electrical engineer while completing their BSEE degree.

Internships are available to students who would like to gain engineering work experience without a long-term commitment. Internships are available as full-time jobs during the summer or as part-time jobs during the school year.

The typical Electrical Engineering co-op student goes to school the first two years just as a non-co-op student does. At the end of their sophomore year, the co-op student goes to work and works through the summer. The student is back in school in the fall and out to work in the spring. Thereafter, the student alternates between work and school.

CO-OP CALENDAR			
Year	Fall	Spring	Summer
1	School 1	School 2	Work option
2	School 3	School 4	Work 1
3	School 5	Work 2	School/Work option
4	Work 3	School 6	Work 4
5	School 7	School 8	

Some students who are exceptionally well-prepared to enter the workforce may begin their co-op period in the summer after their freshman year. However, this is unusual, and most students begin after their sophomore year. The summer after their junior year may be either school or work as needed.

To enter the co-op program, students should enroll in EXED 090. This is a noncredit course that should be taken during the fall of their sophomore year. This course covers such topics as résumé writing, interviewing, and what is expected on the job. During the spring of their sophomore year, the typical co-op student interviews with prospective employers. The Center for Career Development takes care of contacting employers and arranging interviews for students. Placement in a co-op or intern position is dependent on the outcome of the interview process.

Co-op and internship students in Electrical Engineering have a wide range of employers to choose from. Employers are located in the immediate Evansville area, in the surrounding region of Indiana, Kentucky, and Illinois, and in various places throughout the country.

The companies listed below are some that have provided Electrical Engineering students with co-op or intern opportunities in the past.

Alcoa	NWSC Crane
Boeing	Toyota
CenterPoint Energy	Whirlpool Corporation
General Electric	Wright-Patterson AFB
Intel Corporation	

The real value of the co-op and intern programs is in the experience that it provides the student. A co-op job can be a financial benefit, but one term at work does not typically cover the cost of one term of education. The co-op and intern programs give employers a chance to look at a student as a prospective employee without making a commitment to long-term employment. Likewise, these programs give the student a chance to look at a company and gain some experience before entering the workforce as a working professional.

Students who participate in the co-op and intern programs normally get a higher salary offer upon graduation than do non-co-op students. In many cases, the co-op employer provides a long-term employment opportunity for the co-op student upon graduation.

Harlaxton College Option

Harlaxton College is the study abroad center of UE and is located in the rolling countryside of Grantham, England. Harlaxton is about a one-hour ride by train from London. Engineering students who choose to spend a semester studying at Harlaxton have easy access to England's culture, history, and entertainment.

Harlaxton is housed in a large Victorian manor where about 200 students and faculty live and hold classes. The Manor has a number of historic state rooms, a soccer field, sports hall, student lounges, bistro, and walking trails.

Engineering students who wish to study one semester in England are encouraged to do so during the first semester of their sophomore year. At Harlaxton, Engineering students typically take Calculus, British Studies, and general education classes. Harlaxton is on the semester system and all classes earn credit at the University in the same way they would if they were taken in Evansville. Since the Engineering program requires a number of general education classes, all classes taken at Harlaxton count as required courses toward the Engineering degree.

Students at Harlaxton are encouraged to travel on weekends. The Manor arranges eight to 10 weekend field trips to locations such as Nottingham, London, Scotland, and Wales. During some semesters, less frequent but longer trips are arranged to Ireland and throughout the continent.

Harlaxton has its own resident British faculty as well as visiting faculty from the home campus and other selected universities in the United States. Likewise, students at Harlaxton come from the Evansville campus, England, and various other campuses around the United States.

Harlaxton Costs

While the tuition at Harlaxton is the same as the Evansville campus and all scholarships apply to Harlaxton, there are additional costs associated with travel. The typical round-trip airfare is \$1,500, and the typical student at Harlaxton will spend an additional \$3,000-\$4,000 on weekend trips, souvenirs, and other miscellaneous expenses.

UE Honors

Graduation Requirements

Four steps to graduating from Honors at UE.

1. Earn 15 Honors Credit Hours
2. Complete an Honors Project or Moore Scholar Portfolio
3. Present the Honors Project or Portfolio at the Honors and Undergraduate Research Symposium
4. Achieve a cumulative GPA of 3.5

Need more details? Visit evansville.edu/honors.

Ways to Earn Honors Credit

Honors Scholars may earn 15 Honors credit hours through any combination of these offerings:

CHNG 310-H (Reimagining Honors)

This course, offered every semester through ChangeLab, may be taken for 0-3 credit hours.

FYS 112 Common Read

Students who begin their Honors journey as freshmen in any given fall semester will enroll in an Honors section of FYS 112. Transfer students have the option of taking this course or enrolling in FYS 312 and contracting the course for Honors credit.

Honors Course Contracts

Students may work with professors to contract a non-Honors course for credit. As long as they go through the approval process and the course instructor determines they have satisfactorily completed contracted assignments, the course will count toward the 15 hours of required coursework.

Honors Sections of Standard Courses

These sections have an H after the course number in the course title. For example, BIOL 119-H01 is an Honors section. To see all available options, use the filter function in Self-Service.

Honors Project or Portfolio and HON 410-H

All Honors Scholars register for HON 410 during the semester they complete their Honors Project or Portfolio. During the application process, students and their Project/Portfolio supervisors determine whether they should register for 0-3 credit hours. (See HON 401-H Guidelines for details.)

Honors British Studies

Students who choose to study at Harlaxton should register for Honors sections of BRIT 320/330: British Studies Historical Perspectives and British Studies Literary Perspective. (Remember! Look for the H in the course title!) It is advisable to confirm with the Study Abroad Office that these courses will be offered when you plan to attend Harlaxton College.

Opting Up

Honors students benefit from an enhanced academic experience that fosters deeper and more substantive learning. One mechanism designed to strengthen Honors students' academic experiences is the unique opportunity, reserved solely for Honors students, to "opt up" within general education. That is, Honors students are allowed to "opt up," by substituting a more challenging, upper-level course for a general education course.

Bachelor of Science in Electrical Engineering

FALL			SPRING		
FRESHMAN					
CHEM 118	Principles of Chemistry	4	CS 210	Fundamentals of	3
EE 101	Introduction to Electrical	3		Programing I	
	Computer Engineering		MATH 222	Calculus II	4
FYS 112	First Year Seminar	3	PHYS 210	Calculus Physics I	4
MATH 221	Calculus I	4		General Education	3
	Foreign Language 111*	3		Foreign Language 112*	3
		17			17
SOPHOMORE					
EE 210	Circuits	3	EE 215	Circuits II	3
	Free Elective	3	EE 254	Logic Design	3
MATH 323	Calculus III	4	EE 342	Electronics I	3
PHYS 211	Calculus Physics II	4	ENGR 390	Engineering Mathematics	3
	General Education	3	MATH 324	Differential Equations	3
		17			15
JUNIOR					
EE 310	Signals and Systems	3	EE 311	Digital Signal Processing	3
EE 330	Introduction to Power	3	EE 360	Control Systems	3
	Systems		EE 380	Instrumentation Lab	3
EE 343	Electronics II	3	EE 454	Microcontroller	3
EE 354	Embedded Systems	3		Applications	
	General Education	3		General Education	3
		15			15
SENIOR					
EE 420	Electromagnetics	3	EE 497	Senior Project Phase II	3
	Electrical Engineering	3		Electrical Engineering	3
	Elective I			Elective III	
EE 495	Senior Project Phase 1	3		General Education	3
	Electrical Engineering	3		General Education	3
	Elective II			Free Elective	3
	General Education	3			15
	Health and Wellness	1			
		16			

*Note: Only if necessary to meet the University foreign language requirement.

Harlaxton College Option Plan of Study Bachelor of Science in Electrical Engineering

FALL			SPRING		
FRESHMAN					
CHEM 118	Principles of Chemistry	4	CS 210	Fundamentals of	3
EE 101	Introduction to	3		Programming I	
	Engineering		EE 210	Circuits	3
FYS 112	First Year Seminar	3	MATH 222	Calculus II	4
MATH 221	Calculus I	4	PHYS 210	Calculus Physics I	4
	Foreign Language 111*	3		Foreign Language 112*	3
		17			17
SOPHOMORE					
ID H282/H283	The British Experience	6	EE 215	Circuits II	3
MATH 324	Differential Equations	3	EE 254	Logic Design	3
	General Education	3	EE 342	Electronics I	3
	General Education	3	ENGR 390	Engineering	3
		15		Mathematics	
			MATH 323	Calculus III	4
					16
JUNIOR					
EE 310	Signals and Systems	3	EE 311	Digital Signal	3
EE 343	Electronics II	3		Processing	
EE 354	Embedded Systems	3	EE 360	Control Systems	3
EE 330	Introduction to Power	3	EE 380	Instrumentation Lab	3
	Systems		EE 454	Microcontroller	3
	General Education	3		Applications	
		15		General Education	3
					15
SENIOR					
EE 420	Electromagnetics	3	EE 497	Senior Project Phase II	3
	Electrical Engineering	3	ME 212	Statics	3
	Elective I			Electrical Engineering	3
EE 495	Senior Project Phase 1	3		Elective III	
PHYS 211	Calculus Physics II	4		General Education	3
	Electrical Engineering	3		Free Elective	3
	Elective			Health and Wellness	1
		16			16

*Note: Only if necessary to meet the University foreign language requirement.

Engineering Management Minor

A minor in Engineering Management is offered by the School of Engineering and Computer Science in cooperation with the Schroeder School of Business. For Electrical and Computer Engineering students, the Engineering Management minor can be earned by taking the following courses.

Engineering Management Minor (18 hours)

ECON 101 Principles of Macroeconomics
 (general education outcome 9)

or

ECON 102 Principles of Microeconomics

ENGR 390 Applied Engineering Mathematics (required)

ENGR 409 Engineering Economy and Decision Making

COMM 380* Intercultural Communication
 (general education outcome 9 and overlay A)

or

BUS 100 Introduction to Business

MGT 331 International Business Strategy

or

MGT 377 Organizational Behavior

LSCM 315 Introduction to Logistics and Supply Chain Management

All Electrical Engineering students pursuing this minor should see an advisor to carefully choose courses which also meet general education requirements. With careful curriculum planning, Electrical Engineering students can earn an Engineering Management minor by taking just three additional courses.

Mathematics Minor

To obtain a minor in Mathematics from the William L. Ridgway College of Arts and Sciences, students must take MATH 221, MATH 222, and four Mathematics courses numbered 300 or above (including ENGR 390 and PHYS 305). Students who satisfy the Electrical Engineering degree requirements only need to take one additional Mathematics course numbered 300 or above to satisfy the Mathematics minor requirements. By taking either PHYS 305 or a 300- level or higher Mathematics course to satisfy the math/science elective, Electrical Engineers can satisfy the Mathematics minor requirement without taking any additional courses.

Computer Science Minor

A minor in Computer Science is offered by the School of Engineering and Computer Science. Electrical and Computer Engineering students can earn a Computer Science minor by taking the following courses.

Computer Science Minor

ENGR 123 Programming for Engineers

or

CS210 Fundamentals of Programming I

CS220 Logic Design and Machine Organization

or

EE 254 Logic Design

CS 215 Fundamentals of Programming II

CS 290 Object Oriented Design

Plus 9 hours of 300 or 400 level CS courses

Course	Title
EE 410	Analog Circuit Synthesis
EE 440	Communication Electronics
EE 465	Digital Control Systems
MATH 341	Linear Algebra

Biomedical Option

Electrical Engineering majors may receive a bachelor's degree in Electrical Engineering with a Biomedical option by substituting BIOL 107, 112, 113, and a 3-credit Biology elective for EE 430, 471, and PHYS 213/214. Two of the Electrical Engineering technical electives may be chosen in the Electrical Engineering area or in the Biology area with guidance and permission from the academic advisor. In addition, the senior project must be Biomedical-related.

Graduate School

Electrical Engineering students who intend to go to graduate school for more specialization should take courses in advanced mathematics or in areas that provide a broad theoretical foundation in particular areas. The following courses may be useful for this purpose.

Course	Title
EE 410	Analog Circuit Synthesis
EE 415	Image Processing
EE 465	Digital Control Systems
MATH 365	Probability
MATH 420	Advanced Calculus
PHYS 305	Mathematical Physics
PHYS 471	Quantum Mechanics

Electrical Engineering Courses

For course descriptions, visit evansville.edu/electrical and select About Our Program > Course Offerings.

EE 210 Circuits I

EE 215 Circuits II

EE 254 Logic Design

EE 310 Signals and Systems

EE 311 Digital Signal Processing

EE 330 Introduction to Power Systems

EE 331 Energy Conversion Systems

EE 342 Electronics I

EE 343 Electronics II

EE 354 Embedded Systems

EE 360 Control Systems

EE 380 Instrumentation Lab

EE 420 Electromagnetics

EE 445 Industrial Electronics and Controls

EE 454 Microcontroller Applications

EE 495 Senior Project Phase 1

EE 497 Senior Project Phase 2

EE 499 Special Topics in Electrical Engineering

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