BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Electrical engineering is concerned with the generation, transmission, and utilization of electrical energy and with the transmitting and processing of information. Electrical engineers are involved in the analysis, design, and production of electric power, radio, radar, television, computing, telecommunication, control, and information systems. These engineers find solutions to the challenging technical problems that arise in our rapidly changing society. They impact virtually every aspect of daily life, as evidenced by examples such as wireless communications, audio and video equipment, power distribution, computerized traffic control, noise pollution monitoring and abatement, and medical instrumentation.

The electrical engineering curriculum puts emphasis on both theory and practical applications by providing a solid background in engineering science and mathematics, followed by a sequence of core courses in electrical engineering. Design skills are fostered in the professional elective courses in the senior year, along with the project experience instilled by Interprofessional Projects (IPROs).

The objectives of the ECE undergraduate electrical engineering program are to produce electrical engineering graduates who are prepared to:

- Enter their profession and make intellectual contributions to it
- Embark on a lifelong career of personal and professional growth
- Take advanced courses at the graduate level

Required Courses

Code	Title		Credit Hours
Electrical Engineering Requirements			**(32)**
ECE 100	Intro to the Profession I		3
ECE 211	Circuit Analysis I		3
ECE 213	Circuit Analysis II		4
ECE 218	Digital Systems		4
ECE 242	Digital Computers&Computing		3
ECE 307	Electrodynamics		4
ECE 308	Signals Systems		3
ECE 311	Engineering Electronics		4
ECE 319	Fndmntls of Power Engrn		4
Professional ECE Electives			**(17-20)**
Select 17-20 credit hours [1]			17-20
Mathematics Requirements			**(24)**
MATH 151	Calculus I		5
MATH 152	Calculus II		5
MATH 251	Multivariate & Vector Calculus		4
MATH 252	Introduction to Diff Equations		4
MATH 333	Matrix Alg & Complex Variables		3
MATH 374	Probability/Statistics for ECE		3
Physics Requirements			**(8)**
PHYS 123	General Physics I: Mechanics		4
PHYS 221	Gen Physics II: Elect&Magntism		4
Chemistry Requirement			**(3)**
CHEM 122	Principles of Chem I w/out Lab		3
Computer Science Requirements			**(16)**
CS 115	Object-Oriented Programming I		2
CS 116	Object-Oriented Programming II		2
Career Electives [2]			12
Career Elective I		3	
Career Elective II		3	
Career Elective III		3	
Career Elective IV		3	
Free Elective			**(3)**

Select three credit hours	3
Interprofessional Projects (IPRO)	**(6)**
See Illinois Tech Core Curriculum, section E	6
Humanities and Social Sciences Requirements	**(21)**
See Illinois Tech Core Curriculum, sections B and C	21
Total Credit Hours	**130-133**

[1] Professional ECE electives may be chosen from any of the 400-level ECE courses identified with (P) in the course descriptions. Courses at the 500-level may be taken with the written consent of the instructor, faculty adviser, and the ECE department chair. At least two of the electives must contain laboratories. At least one of the Professional Elective courses must be a Major Design Experience (M) course. Note: ECE 441 is an (M) course. A maximum of three credit hours of Undergraduate Research (ECE 491) or Special Problems (ECE 497) may be used as professional ECE electives with adviser approval.

[2] Career Elective: An advisor-approved course from engineering, science, math, computer science, business, and law that is the same level or more advanced than the academic level of the student. Career Elective I is 100-level or above, Career Elective II is 200-level or above, Career Elective III is 300-level or above, Career Elective 4 is 400-level.

Bachelor of Science in Electrical Engineering Curriculum

			Year 1
Semester 1	**Credit Hours**	**Semester 2**	**Credit Hours**
MATH 151	5	MATH 152	5
CHEM 122	3	PHYS 123	4
CS 115	2	Career Elective I[1]	3
ECE 100	3	CS 116	2
Humanities 200-level course	3	Social Sciences Elective	3
	16		**17**

			Year 2
Semester 1	**Credit Hours**	**Semester 2**	**Credit Hours**
MATH 252	4	MATH 251	4
PHYS 221	4	Career Elective II[1]	3
ECE 211	3	ECE 213	4
ECE 218	4	ECE 242	3
		Social Sciences Elective (300+)	3
	15		**17**

			Year 3
Semester 1	**Credit Hours**	**Semester 2**	**Credit Hours**
MATH 333	3	ECE 308	3
IPRO Elective I	3	ECE 319	4
ECE 307	4	MATH 374	3
ECE 311	4	Social Sciences Elective (300+)	3
Humanities Elective (300+)	3	Career Elective III[1]	3
	17		**16**

			Year 4
Semester 1	**Credit Hours**	**Semester 2**	**Credit Hours**
IPRO Elective II	3	Major Design Exp. (M) Elective Course[4]	4
Professional ECE Elective[2]	4	Professional ECE Elective[2]	3-4
Professional ECE Elective[2]	3-4	Professional ECE Elective[2]	3-4
Free Elective[3]	3	Career Elective IV[1]	3
Humanities Elective (300+)	3	Humanities or Social Sciences Elective	3
	16-17		**16-18**

Total Credit Hours: 130-133

1. Career Elective : An advisor-approved course from engineering, science, math, computer science, business, and law that is the same level or more advanced than the academic level of the student. Career Elective I is 100-level or above, Career Elective II is 200-level or above, Career Elective III is 300-level or above, Career Elective 4 is 400-level.
2. Professional ECE Elective: Any of the 400-level ECE courses identified with a (P) in the course descriptions and/or 500- level with the written consent of the instructor. At least two of the Professional Electives must contain laboratories.
3. Free Elective: Advisor approved course from any field of interest to the student.
4. At least one of the professional ECE elective courses must be identified as a Major Design Experience (M) course. Note: ECE 441 is an (M) course.

This program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).