

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

Electrical Engineering Requirements		(36)
ECE 100	Introduction 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 and Computing	3
ECE 307	Electrodynamics	4
ECE 308	Signals and Systems	3
ECE 311	Engineering Electronics	4
ECE 312	Electronic Circuits	4
ECE 319	Fundamentals of Power Engineering	4
Professional ECE Electives		(17-20)
Select 17-20 credit hours		17-20
Mathematics Requirements		(24)
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 251	Multivariate and Vector Calculus	4
MATH 252	Introduction to Differential Equations	4
MATH 333	Matrix Algebra and Complex Variables	3
MATH 374	Probability and Statistics for Electrical and Computer Engineers	3
Physics Requirements		(11)
PHYS 123	General Physics I: Mechanics	4
PHYS 221	General Physics II: Electricity and Magnetism	4
PHYS 224	General Physics III for Engineers	3
Chemistry Requirement		(3)
CHEM 122	Principles of Chemistry I Without Laboratory	3
Engineering Science Requirement		(3)
MMAE 200	Introduction to Mechanics	3
or MMAE 320	Thermodynamics	
Computer Science Requirements		(4)
CS 115	Object-Oriented Programming I	2
CS 116	Object-Oriented Programming II	2
Science Elective		(3)
Select one of the following:		3

BIOL 105	Introduction to Biology	3
BIOL 114	Introduction to Human Biology	3
CHEM 126	Principles of Chemistry II Without Laboratory	3
MS 201	Materials Science	3
Technical Elective		(3)
Select 3 credit hours		3
Interprofessional Projects (IPRO)		(6)
See IIT Core Curriculum, section E		6
Humanities and Social Sciences Requirements		(21)
See IIT Core Curriculum, sections B and C		21
Total Credit Hours		131-134

Bachelor of Science in Electrical Engineering Curriculum

		Year 1	
Semester 1	Credit Hours	Semester 2	Credit Hours
ECE 100	3	MATH 152	5
MATH 151	5	PHYS 123	4
CHEM 122	3	CS 116	2
CS 115	2	Science Elective ¹	3
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	PHYS 224	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
ECE 307	4	ECE 312	4
ECE 311	4	ECE 319	4
I PRO Elective I	3	MATH 374	3
Humanities Elective (300+)	3	Social Sciences Elective (300+)	3
		17	17
		Year 4	
Semester 1	Credit Hours	Semester 2	Credit Hours
I PRO Elective II	3	Professional ECE Elective ²	4
Professional ECE Elective ²	4	Professional ECE Elective ²	3-4
Professional ECE Elective ²	3-4	Professional ECE Elective ²	3-4
Technical Elective ³	3	MMAE 200 or 320	3
Humanities Elective (300+)	3	Humanities or Social Sciences Elective	3
		16-17	16-18

Total Credit Hours: 131-134

¹ Science elective must be BIOL 105, BIOL 114, CHEM 126, or MS 201.

² 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. A maximum of 3 credit hours of Undergraduate Research (ECE 491) or Special Problems (ECE 497) may be used as professional ECE electives with adviser approval.

³ Adviser-approved course from engineering, science, mathematics, or computer science that is more advanced than the academic level of the student.

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