

Electrical Engineering

Electrical Engineering (EE), one of the broadest engineering disciplines, is the branch of engineering that focuses on designing and analyzing components and systems that utilize electrons and photons. In addition to the traditional roles of designing, analyzing and working with electrical and electronic systems, components and system integration, electrical engineers work in information technology and software development and function on multidisciplinary teams.

Through a jointly registered program with Binghamton University (BU), SUNYIT provides four-year and transfer students the opportunity to study EE at SUNYIT. This program, supported by faculty from both SUNYIT and BU, gives undergraduate students the opportunity to earn a Bachelor of Science degree in Electrical Engineering (BSEE) from BU without travel to the BU campus. The BSEE is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Our program provides breadth across the discipline and a balance between theory and application. In addition, a large number of laboratory courses provide students opportunities for hands-on learning. The program provides graduates the skills and knowledge necessary for a dynamic career in electrical engineering.

Program Objectives

The specific Educational Objectives of the program are:

1. To provide graduates with a solid foundation in mathematics, physical sciences, humanities and social sciences, and the fundamentals of engineering design and analysis.
2. To provide graduates the technical knowledge and critical thinking skills required for the professional practice of electrical engineering and for seeking advanced degrees.
3. To assist graduates in developing communication skills, working cooperatively in teams, recognizing the need for life-long learning, and understanding professional, ethical and social responsibility in a global context.

Admission Guidelines

To satisfy the enrollment eligibility criteria established jointly by SUNYIT and BU, prospective students must either have a 2.8 or better GPA in Engineering Science or an equivalent plan of study prior to transfer at the junior-level. SUNYIT students completing the first two years of the applied mathematics program at SUNYIT with a GPA of 2.8 or better are also eligible for matriculation into the program. Students must complete certain courses to be accepted at the junior level, only courses with grades of C- or higher will be accepted for transfer. SUNYIT students who are not enrolled in the applied mathematics program but who complete the prerequisite courses and who have achieved a minimum GPA of 2.8 with grades of C- or higher are also eligible for enrollment as transfer students into the EE program.

Students are considered for merit scholarships under the academic guidelines established by SUNYIT and BU.

BSEE Degree Requirements

To receive the BSEE degree, students must complete a minimum of 125 credit hours in the courses outlined below with a grade-point average of 2.0. All students must meet the General Education requirements for the program.

Arts and Science – Required Courses

Composition/ENG 101	4
Global Interdependencies/IDS 101	4
Aesthetics/IDS 102	4
Social Science/IDS 103	4
Pluralism/IDS 104	4
Humanities	4
Physical Education/Wellness	2

Mathematics and Science – Required Courses

MAT 151 – Calculus I	4
MAT 152 – Calculus II	4
MAT 253 – Calculus III	4
MAT 230 – Differential Equations	4
MAT 370 – Applied Probability	4
CHE 110 – Chemistry (w/lab)	4
PHY 201 – Physics I (calc-based)	4
PHY 202 – Physics II (calc-based)	4
CS 108 – Computing Fundamentals	4
CS 240 – Data Structures	4

Engineering – Required Courses

ECE 251 – Digital Logic Design	4
ECE 252 – Microprocessors	4
ECE 260 – Electrical Circuits	4
ECE 281 – ECE Seminar I	1
ECE 301 – Signals and Systems	4
ECE 315 – Electronics I	4
ECE 323 – Electromagnetics	3
ECE 332 – Semiconductor Devices	3
ECE 361 – Control Systems	4
ECE 377 – Communications Systems	3
ECE 382 – ECE Seminar II	1
ECE 387 – Junior Design Laboratory	3
ECE 487 – Senior Design Lab I	4
ECE 488 – Senior Design Lab II	4
ECE Technical Elective I	3
ECE Technical Elective II	3

Electives

Professional Elective I	4
Professional Elective II	4
Open Elective	3

Technical Elective I/II: Any 300-level or better elective ECE course.

Professional Elective I/II: Any 300-level or better math course, lab science, engineering course, or faculty-approved special choice.

BSAM/BSEE Dual-Degree Option: An Electrical Engineering student wishing to fulfill degree requirements for the BS in Applied Mathematics must additionally take Linear Algebra, Modern Algebra, Series and Boundary Value Problems, Complex Variables and their Applications, and Real Analysis, plus two restricted electives in order to satisfy degree requirements in Applied Mathematics. Additionally, to ensure that the SUNYIT General Education Requirements are met, students must complete coursework in Upper Division Writing, Foreign Language, and Social Sciences.

More Information: A sample course schedule and additional information regarding the EE program at SUNYIT can be found on the web at http://www.sunyit.edu/pdf_files/ee/BSEEPProgramSheet.pdf