B.S. in Engineering Technology, Electrical and Computer Engineering Technology

The Electrical and Computer Engineering Technology (ECET) program emphasizes the application of electrical/electronics principles and devices and computer hardware and software. Graduates of the ECET program are involved in product development and improvement, system development, management, manufacturing and engineering operational functions, in a wide variety of companies in the computer, telecommunications, medical electronics and other technical fields. Graduates also have positions in technical sales and customer service, and a significant percentage continue their studies and earn graduate degrees in engineering or management.

The placement of graduating students has been excellent. This program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC of ABET), http://abet.org.

Graduates of this program are eligible to sit for the Professional Engineer’s examination in New Jersey with the appropriate experience, as determined by the New Jersey Board of Professional Engineers and Land Surveyors (http://www.njconsumeraffairs.gov/pels/). Graduates of the program are also eligible to pursue graduate degrees in biomedical engineering, electrical and computer engineering, engineering management, management or related areas and students may participate in the BS/MS Program (http://www.njit.edu/graduatetudies/program-options/bs-ms/index.php). The full four-year curriculum for the program is shown below. Students who wish to enter the program as a transfer student are typically students with an A.A.S. degree in Electrical Engineering Technology and should have completed most or all of the courses, or their equivalents, in the first two years of the program as shown below. In the case of all students, both four-year and transfer, a minimum of 129 credits is required for graduation.

Program Educational Objectives

• Our graduates will establish productive careers in technology-based organizations in such diverse positions as design, manufacturing, teaching, management, system engineering and sales.
• Our graduates will participate in lifelong learning activities including graduate school and other professional education.

Student Outcomes

• an ability to select and apply the knowledge, techniques, skills, and modern tools of their disciplines to broadly-defined engineering technology activities
• an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies
• an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes
• an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives
• an ability to function effectively as a member or leader on a technical team
• an ability to identify, analyze, and solve broadly-defined engineering technology problems
• an ability to apply written, oral and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
• an understanding of the need for and an ability to engage in self-directed continuing professional development
• an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity
• a knowledge of the impact of engineering technology solutions in a societal and global context
• a commitment to quality, timeliness, and continuous improvement
• the application of digital and analog circuit design, computer software, and embedded systems to the development of electrical and computer systems;
• the ability to analyze and develop communications, control, computer, or power systems
• the ability to apply project management techniques to computer and electrical systems.
• the ability to utilize statistics/probability, transform methods and differential equations in support of electrical and computer systems

(121 credits minimum)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>First Year</td>
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<tr>
<td>MATH 138</td>
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<td>CS 106</td>
<td>Roadmap to Computing Engineers</td>
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<td>HUM 101</td>
<td>English Composition: Writing, Speaking, Thinking I</td>
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<td>MET 103</td>
<td>Engineering Graphics and Intro. to CAD</td>
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<td>MATH 238</td>
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<td>ECET 201</td>
<td>Circuits I</td>
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<tr>
<td>ECET 215</td>
<td>Introduction to Digital Electronics</td>
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<td>HUM 102</td>
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<td>CPT 315</td>
<td>Computer Architecture for Computer Technology</td>
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<td>HUM 212</td>
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<td>HIST 213</td>
<td>The Twentieth-Century World</td>
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<td>ECET 214</td>
<td>Introduction to Communications</td>
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<td>MATH 309</td>
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<td>ECET 303</td>
<td>Circuit Measurements</td>
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<td>ECET 311</td>
<td>Embedded Systems I</td>
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<td>ECET 365</td>
<td>Digital Logic and Circuit Design</td>
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<td>ENG 352</td>
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<td>MATH 322</td>
<td>Differential Equations for Applications</td>
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<td>ECET 411</td>
<td>Embedded Systems II</td>
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<td>ECET 300</td>
<td>Circuit Analysis: Transform Methods</td>
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<td>ECET 305</td>
<td>Integrated Circuit Applications</td>
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<td>ECET 344</td>
<td>Numerical Computing for Engineering Technology</td>
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<tr>
<td>MNET 414</td>
<td>Industrial Cost Analysis</td>
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B.S. in Engineering Technology, Electrical and Computer Engineering Technology

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>MATH 305</td>
<td>Statistics for Technology or Industrial Statistics</td>
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<tr>
<td>PHIL 334</td>
<td>Engineering Ethics and Technological Practice: Philosophical Perspectives on Engineering</td>
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<tr>
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Term Credits: 15

2nd Semester

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<tr>
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<tbody>
<tr>
<td>ECET 400</td>
<td>Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 301</td>
<td>Chemical Technology</td>
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<td>Humanities and Social Science Senior Seminar GER</td>
<td><a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone">link</a></td>
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<td>Technical Elective (300 level or higher)</td>
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<td>3</td>
</tr>
<tr>
<td>Technical Elective (300 level or higher)</td>
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<td>3</td>
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</table>

Term Credits: 15

Total Credits: 121

1. Tech Electives: Any course with a technical subject matter. Lower division must be 200 level or higher, upper division must be 300 level or higher. Excludes CPT 310.
2. Free Electives: Any course offered by the university, may be technical or non-technical. Lower division must be 200 level or higher, upper division must be 300 level or higher
3. ECET Electives: ECET 350, 412, 415, 416, 418, 440, and 444

ECET Technical Electives

ECET Technical electives are 300 and 400 level courses offered by the ECET program that are not previously required courses within the program. All ECET students are required to take at least two of these courses for their degree. ECET elective courses taken in addition to the two required can fill any of the elective requirements. Note: ECET 329 is not considered an ECET Technical Elective course as it is only for non-ECET majors and cannot be used towards the ECET degree.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>ECET 350</td>
<td>Computerized Industrial Controls</td>
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</tr>
<tr>
<td>ECET 412</td>
<td>Power Generation and Distribution</td>
<td>3</td>
</tr>
<tr>
<td>ECET 415</td>
<td>Fundamentals of Telecommunications</td>
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</tr>
<tr>
<td>ECET 416</td>
<td>Networking Applications</td>
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<tr>
<td>ECET 418</td>
<td>Transmission Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECET 440</td>
<td>Clinical Internship</td>
<td>3</td>
</tr>
<tr>
<td>ECET 444</td>
<td>Technology Applications of Object-Oriented Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Technical Electives

Technical electives can be satisfied only by courses with a technical subject matter; this excludes Humanities, History, Economics, Social Sciences, Literature, and any other non-technical subject. In general, the following subjects qualify as Technical Electives: ARCH, BIO, BIOL, BME, CE, CET, CHEM, CPT, CS, ECE, EM, ENGR, IE, IS, IT, MATH, ME, MECH, MET, MIS, MNET, OPSE, PHYS, and SET. Except CPT 310 Computer Design Fundamentals for Computer Technology or MATH 305 Statistics for Technology or MATH 309 Mathematical Analysis for Technology or MATH 322 Differential Equations for Applications or CHEM 301 Chemical Technology or MNET 315 Industrial Statistics or MNET 414 Industrial Cost Analysis. Additionally, any course required for the ECET degree cannot be used as a technical elective, in the case where a class has been substituted in place of a required course, the originally required course cannot be used as an elective.

Free Electives

Free electives may be satisfied by any course offered at the university. The ECET program contains two free electives, one 3 credit course, 200 or higher level and one 3 credit course, 300 or higher level.

Co-op Work Experience (Internship)

Co-op Work Experience is not required as part of the ECET program, although it is highly recommended. Students can participate in a sixteen-week paid internship at a variety of local companies. Students who pass Co-op can use the credit to fulfill any of the six non-ECET required electives.
To apply for Co-op students must first visit the Career Development Services office at NJIT and fill out a Co-op application. The application will be sent to your academic advisor for approval and you will be notified of the decision.

**Co-op Classes**

The ECET Co-op classes are ECET 395 Co-op Work Experience I and ECET 495 Co-op Work Experience II.

This curriculum represents the maximum number of credits per semester for which a student is advised to register. A full-time credit load is 12 credits. First-year students are placed in a curriculum that positions them for success which may result in additional time needed to complete curriculum requirements. Continuing students should consult with their academic advisor to determine the appropriate credit load.