Electronic Systems Technologies Requirements

The Bachelor of Science in Electronic Systems Technologies (EST) provides advanced technical and managerial coursework for students pursuing careers in the electronics industry. The program allows students the flexibility to choose a curriculum that will complement their career goals with their educational and work experience. Graduates with an EST degree possess the skills required of the technologist entering areas such as biomedical equipment technology, communications and networking technology, and automation and control technology. The Electronics Management Specialization (ELM) within the EST degree is well suited for technicians or technologists with coursework and work experience seeking advancement or placement in managerial roles in the electronics industry.

The Electronic Systems Technologies degree is a baccalaureate completion degree (300/400-level coursework for a 2+2 degree) designed as a path for students who have completed Electronic Technology AAS degree or equivalent. Students with other types of education and training can also be admitted, including those with military training. Students entering the completion degree are expected to have had coursework, documented training or work experience in the following technical subject areas:

- DC/AC Electronics Fundamentals
- Solid State Electronics Fundamentals
- Digital Electronics Fundamentals
- PC Troubleshooting & Repair
- LAN Networking
- A Programming Language

Students lacking formal education or documented experience in the listed areas may meet these requirements through a variety of methods. The Electronics Fundamentals requirements, with content equivalent to EST 101, EST 102 and EST 201, may be met through additional community college coursework, proficiency exams, or documented training. The PC Troubleshooting, LAN networking and programming language requirements may be met through SIU courses ISAT 121, ISAT 224 and IST 209 respectively, available proficiency exams, or community college coursework. Please see our website for additional entry information and guidance (http://isat.siu.edu/est).

In addition, transfer credit for University Core Curriculum requirements varies depending on previous coursework. An individual who has earned an AAS degree also may qualify for the Southern Illinois University Carbondale Capstone Option. Capstone gives maximum credit for previous academic and work experience in the student’s occupational field and reduces the University Core Curriculum requirements.

The Electronic Systems Technologies program has a number of “Program Articulation Agreements” with electronics-related community college degree programs in order to facilitate the transfer of community college students to SIU. These agreements take full advantage of the Capstone Option for admission to the Bachelor of Science in Electronic Systems Technologies. Please check with your guidance counselor at the community college on the status of these articulation agreements.

If you have questions about how the degree requirements and articulation agreements apply to your personal situation, contact the community college program representative or the academic advisor in Electronic Systems Technologies at 618/ 453-7200 or through our website at isat.siu.edu/est.
Bachelor of Science Degree in Electronic Systems Technologies, 
College of Applied Sciences and Arts

Electronic Systems Technologies Major

The student with an Electronic Systems Technologies (EST) major will take coursework designed to provide an effective school-to-work transition for careers in the electronics industry. A mandatory internship ensures that students receive field experience within their chosen career fields. The curriculum places emphasis on skills necessary to achieve long-term career goals in the electronics field, but has courses specific to the following career paths:

1. Biomedical Equipment Technology
2. Automation and Control Technology
3. Telecommunications and Networking Technology

Completion of this degree provides graduates with advanced skills required by electronic technologists. Technical skills include: the evaluation of current technologies, the planning and implementation of preventive maintenance programs and the testing, troubleshooting and configuration of electronic equipment and systems. In addition, the degree improves skills in writing, interpreting and presenting technical documentation.

<table>
<thead>
<tr>
<th>Degree Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Core Curriculum Requirements</td>
<td>41</td>
</tr>
<tr>
<td>Requirements for the Major in Electronic Systems Technologies</td>
<td>42-48</td>
</tr>
<tr>
<td>EST Core Requirements (or approved equivalents): EST 305, EST 308, EST 319, EST 340, EST 341, EST 404, EST 451, ISAT 365, ISAT 366</td>
<td>27</td>
</tr>
<tr>
<td>Technical Requirements: Selected approved electives, including: EST 301, EST 302, EST 306, EST 307, EST 310, EST 311, EST 317, EST 342, EST 343, EST 407, EST 411, ISAT 335, ISAT 415, ISAT 416, ISAT 360, ISAT 316</td>
<td>21</td>
</tr>
<tr>
<td>Approved Technical or Career Electives</td>
<td>31-37</td>
</tr>
<tr>
<td>DC/AC Electronics</td>
<td>3-6</td>
</tr>
<tr>
<td>May be satisfied through documented coursework, documented training, available proficiency exams or approved seminars.</td>
<td>3-6</td>
</tr>
<tr>
<td>Digital Electronics</td>
<td>3-6</td>
</tr>
<tr>
<td>ISAT 121 and ISAT 224</td>
<td>6</td>
</tr>
<tr>
<td>ISAT 209</td>
<td>3</td>
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</tbody>
</table>
Electronic Systems Technologies Major with an Electronic Management Specialization

An Electronic Systems Technologies major who chooses the Electronics Management Specialization is provided a curriculum focused on the skills and knowledge necessary to effectively integrate current and emerging technology into the work place. The electronic devices are being transformed to smart objects with embedded sensors, onboard data processing capability, and a means of communication especially equipped with the Internet. This rapidly evolving field called the Internet of Things (IoT) needs understanding of Cyber Security and Management of modern electronic systems.

Graduates will possess the technical, managerial and supervisory skills needed for entry-level positions in the electronics field with the increased potential in Cyber Security and Management for vertical mobility in today's workforce.

The process of evaluating and acquiring new and existing technologies, planning and implementing security measures, maintaining and managing technological systems and effectively utilizing human resources will be studied. The graduate from this specialization will be able to communicate effectively and coordinate the efforts of skilled technicians in managing complex cyber-physical systems from increasing cyber attacks. Skills acquired will allow the graduate to train people in the use and maintenance of complex cyber-physical systems, plan and prioritize efforts to maximize the use of technological resources, and explain technical ideas to nontechnical personnel. Their responsibilities are continually expanding as the number of cyber attacks increases and more smart objects are connected.
### Degree Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>EST 342, EST 404</td>
<td>6</td>
</tr>
<tr>
<td>ISAT 316, ISAT 335, ISAT 360 or ISAT 415</td>
<td>9</td>
</tr>
</tbody>
</table>

#### Elective Requirements

- Internship or independent studies or approved equivalent: 2-6
- Approved Technical or Career Electives: 33
  - DC/AC Electronics: 3-6
  - Solid State Electronics: 3-6
  - Digital Electronics: 3-6
  - ISAT 216 and ISAT 224: 6
  - ISAT 209: 3

Other approved coursework: 4-21

Total: 120

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1. The Capstone Option reduces University Core Curriculum requirements.
2. May be satisfied through documented coursework, documented training, available proficiency exams or approved seminars.
3. May be satisfied through documented coursework, documented training, available proficiency exams or approved seminars.
4. May be satisfied through documented coursework, documented training, available proficiency exams or approved seminars.
5. May be satisfied through documented coursework, documented training, or available proficiency exams.
6. May be satisfied through documented coursework, documented training, or available proficiency exams.

Last updated: 09/07/2017

**Southern Illinois University**
Carbondale, IL 62901
Phone: (618) 453-2121

**Catalog Year Statement:**
Students starting their collegiate training during the period of time covered by this catalog (see bottom of this page) are subject to the curricular requirements as specified herein. The requirements herein will extend for a seven calendar-year period from the date of entry for baccalaureate programs and three years for associate programs. Should the University change the course requirements contained herein.
subsequently, students are assured that necessary adjustments will be made so that no additional time is required of them.