ELECTRICAL AND COMPUTER ENGINEERING TECHNOLOGY

• Computer Systems Concentration
• Electrical/Electronic Systems Concentration

Bachelor of Science Degree in Electrical and Computer Engineering Technology

Division of Engineering, Computer Programming, and Technology
The Electrical and Computer Engineering Technology Bachelor’s degree offers graduates of an A.S. degree in Electronics Engineering Technology, an A.A. Articulated Pre-Major in Electrical and Computer Engineering Technology, an A.A. Pre-Major in Engineering, or an articulated specialization in Audio Engineering Technology within the Sound and Music A.S. degree the opportunity to expand their knowledge in advanced modalities and administration. The Electrical and Computer Engineering professions are challenging and growing professions with career opportunities in areas such as electrical engineering or computer engineering. With professional experience and additional education at the baccalaureate level, opportunities for management and education career options are enhanced.

Program Mission
The mission of the Electrical and Computer Engineering Technology program is to offer quality engineering and technology education to develop essential skills to meet the requirements of the industry. Graduates will become productive professionals and leaders by reaching out to community and the profession through innovative services and solutions.

Program Educational Objectives
The BSECET program will produce graduates who will:

• Possess the technical and professional skills to have successful careers in regional, state, or national industries related to their discipline.
• Have a broad understanding of concepts applied to their discipline and use this knowledge to analyze engineering and technology problems to develop optimum solutions.
• Effectively communicate and work in cross-functional teams while adhering to high standards of ethics and professional responsibility.
• Expand their capabilities and knowledge of contemporary issues and changing technologies through lifelong learning experiences including higher education, professional training, and service to community.

Potential Careers
• Computer Systems Engineer
• Electrical/Electronic Engineer
• Software Systems Engineer
• Power Systems Engineer
• Network Engineer
• Electro-Optical Systems Engineer
• Control Systems Engineer
• Wireless Systems Engineer

Salary & Earnings Information

Contacts
For more information about the program or admission requirements, please contact Nancy Girgis, Program Advisor, at 407-582-5623 or ngirgis@valenciacollege.edu.

For the most up-to-date information, visit our website at: valenciacollege.edu/bachelordegrees (http://valenciacollege.edu/bachelordegrees)

Accreditation
The Electrical and Computer Engineering Technology program is accredited by Southern Association of Colleges and Schools (SACS) and it is in the process to seek Accreditation Board of Engineering and Technology (ABET) accreditation.

Application Fee
There is no application fee for this program.

Admission Requirements
Students must meet one of the following criteria:

• Completion of an A.S. degree in Electronics Engineering Technology from a regionally accredited institution with a minimum of 60 semester hours of course work, including 18 semester hours of transferable General Education courses.
• Completion of an A.A. degree from a regionally accredited institution with the following course work:
  - MAC X253 or MAC X311
  - MAC X254 or MAC X312
  - PHY X053 or PHY X048C
• Completion of an A.A. or A.S. degree articulated to B.S.E.C.E.T. degree.

Note: Other Associates or higher degrees must be formally evaluated by the B.S.E.C.E.T. Department for admission.

Admissions to Electrical and Computer Engineering Technology
For the B.S. in Electrical and Computer Engineering Technology program, students must have an A.S. in Electronics Engineering Technology, an A.A. Pre-Major in Electrical and Computer Engineering Technology, an A.A. with Pre-Engineering coursework, or the articulated specialization in Audio Engineering Technology within the Sound and Music A.S. degree. Pre-Engineering coursework should include completion of mathematics through Calculus II and science through Physics with Calculus I.

A minimum overall college grade point average of 2.0 is required for this program.

Students with an A.S. in Electronics Engineering Technology, or an articulated specialization in Audio Engineering Technology within the
Sound and Music A.S. degree must have completed a specific set of credit hours, including:

- 42 credit hours in discipline-specific courses
- 18 credit hours in general education.

In their junior and senior years, they will be required to complete:

- An additional 18 credit hours of general education.
- 52 credit hours or upper-division technical courses

Students with an A.A. Articulated Pre-Major in Electrical and Computer Engineering or an A.A. with Pre-Engineering coursework must have completed a specific set of credit hours including:

- 24 credit hours in associate level coursework
- 36 hours of general education, including the common prerequisites for engineering. (Coursework should include completion of mathematics through Calculus II and science through Physics with Calculus I.)

In their junior and senior years, they will be required to complete:

- An additional 18 credit hours of lower-division technical courses
- 52 credit hours of upper-division technical courses

The grand total for the degree is 130 credit hours.

Note: Students who have earned an Associate degree in another field must meet with the department chair for formal evaluation of their eligibility to earn the B.S. Electrical and Computer Engineering Technology.

Additional Documentation for the Electrical and Computer Engineering Technology Program

Prior to being admitted to the program students must provide official copies of their transcripts showing the A.A. or A.S. degree completion and all coursework associated with the degree.

Degree Requirements

- Students should check with their B.S.E.C.E.T. advisor frequently to ensure that they are making proper progress toward the degree.
- A grade of “C” (2.0) or better is required in all 3000 and 4000 level courses.

Electrical and Computer Technology - Computer Systems Concentration (B.S.E.C.E.T)

Program Outcomes

- Select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities
- 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
- Conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes
- Design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives
- Function effectively as a member or leader on a technical team
- Identify, analyze, and solve broadly-defined engineering technology problems
- Apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature
- Demonstrate an understanding of the need for and an ability to engage in self-directed continuing professional development
- Demonstrate an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity
- Demonstrate a knowledge of the impact of engineering technology solutions in a societal and global context
- Demonstrate a commitment to quality, timeliness, and continuous improvement

Valencia General Education Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENC 1102 Freshman Comp II **~</td>
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<tr>
<td>Social Science and/or Humanities [See Gen. Ed. Institutional Hours (GR)] **~</td>
<td>3</td>
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<tr>
<td>Mathematics</td>
<td>3</td>
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<tr>
<td>MAC 2312 CALCULUS WITH ANALYTIC GEOMETRY II ***~</td>
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<tr>
<td>Science</td>
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<tr>
<td>PHY 2048C GENERAL PHYSICS WITH CALCULUS I **~</td>
<td></td>
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<tr>
<td>General Education Elective [Must take either Humanities or Social Sciences Institutional Requirement (GR), if not previously taken 9-hours at the associate-level, else MAC 1114 or MAC 1140 may fulfill the requirement] **~</td>
<td>3</td>
</tr>
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<td>Total Credit Hours</td>
<td>18</td>
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<tr>
<td>CET 3464C SOFTWARE APPLICATIONS IN ENGINEERING TECHNOLOGY **</td>
<td>3</td>
</tr>
<tr>
<td>CET 4367C MICROCONTROLLER DEVICES *</td>
<td>4</td>
</tr>
<tr>
<td>EGN 3443 Statis Theory for Engin Tech *</td>
<td>3</td>
</tr>
<tr>
<td>EGN 3428 ENGINEERING MATHEMATICAL ANALYSIS *</td>
<td>4</td>
</tr>
<tr>
<td>EET 3086C CIRCUIT ANALYSIS II **</td>
<td>4</td>
</tr>
<tr>
<td>ETP 4241 POWER SYSTEMS AND ENERGY CONVERSION **</td>
<td>3</td>
</tr>
<tr>
<td>ETI 3116 QUALITY ASSURANCE WITH TESTING METHODS *</td>
<td>3</td>
</tr>
<tr>
<td>ETS 3663 ENGINEERING MANAGEMENT AND COMMUNICATION *</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>30</td>
</tr>
</tbody>
</table>
Advanced Technical Requirements

- CET 3156C LOGIC DEVICES PROGRAMMING ** 3
- CET 4126C MICROPROCESSOR PROGRAMMING ** 3
- CET 4663 COMPUTER AND NETWORK SECURITY ** 3
- CET 4370C ADVANCED PROGRAMMING APPLICATIONS ** 3
- CET 4542 COMPUTER ARCHITECTURE AND DATA COMMUNICATION ** 3

Total Credit Hours: 15

Departmental Exit Requirement

- EET 4910 SENIOR DESIGN PROPOSAL 1
- EET 4950 SENIOR DESIGN PROJECT ** 3

Total Credit Hours: 4

Foreign Language Requirements (if not previously met)

Total Hours: 0-8

Advanced Technical Electives - 3 Hours

Any upper-level (3000/4000-level) course offered or approved by the ECET department outside the declared concentration

+ This course must be completed with a grade of C or better.
* This course has a prerequisite; check description in Valencia catalog.
~ This is a general education course.

Program Graduation Requirements

- A minimum adjusted grade point average (GPA) of 2.0 on all 3000 and above course work taken at Valencia.
- Fulfill the requirements for the chosen concentration.
- Complete at Valencia at least 25% of the total 130 hour degree program (33 credits), based upon the Florida College Systems' requirement of a 2+2 admission into the baccalaureate program.
- Two years of one foreign language in high school, or one year foreign language in college (or equivalent proficiency exam) prior to graduation.
- Complete the General Education requirements including the required Gordon Rule.
- Total Semester Hours Required - 130.

Transfer Notes:

- Specialized courses may not be offered every session or on every campus.
- Satisfy Valencia’s General Education requirements and Gordon Rule requirements unless you hold an Associate in Arts or Bachelor’s degree or have completed the entire general education program at a regionally accredited institution.
- Students transferring from a regionally accredited institution with an A.A. degree with the GEP requirements of that institution met have thereby satisfied Valencia GEP requirements. (See also the section on the GEP found elsewhere in the catalog.)
- Substitutions for 3000 and 4000 level courses are on a course-by-course basis and MUST be approved by the department chair.
- Course transferred must be formally evaluated for equivalency credit. The student must provide all supporting information to the B.S.E.C.E.T Department for this evaluation.

Electrical and Computer Engineering Technology – Electrical/Electronic Systems Concentration (B.S.E.C.E.T)

Division of Engineering, Computer Programming, and Technology

Program Outcomes

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Valencia General Education Requirements

| Communication | 3 |
| Social Sciences: See Gen. Ed. Institutional Requirement (GR) | 3 |
| Mathematics | 3 |
| Science | 6 |
| General Education Elective [Must take either Humanities or Social Sciences Institutional Requirement (GR), if not previously taken 9-hours at the associate-level, else MAC 1114 or MAC 1140 may fulfill the requirement] | 3 |

Total Credit Hours: 18
**Engineering Technology Core Requirements**

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<td>C/C++ Programming for Engineers **</td>
<td>3</td>
</tr>
<tr>
<td>CET 3464C</td>
<td>Software Applications in Engineering Technology **</td>
<td>3</td>
</tr>
<tr>
<td>CET 4367C</td>
<td>Microcontroller Devices **</td>
<td>4</td>
</tr>
<tr>
<td>EGN 3428</td>
<td>Engineering Mathematical Analysis **</td>
<td>4</td>
</tr>
<tr>
<td>EGN 3443</td>
<td>Statis Theory for Engin Tech **</td>
<td>3</td>
</tr>
<tr>
<td>EET 3086C</td>
<td>Circuit Analysis II **</td>
<td>3</td>
</tr>
<tr>
<td>ETP 4241</td>
<td>Power Systems and Energy Conversion **</td>
<td>4</td>
</tr>
<tr>
<td>ETI 3116</td>
<td>Quality Assurance with Testing Methods **</td>
<td>3</td>
</tr>
<tr>
<td>ETS 3663</td>
<td>Engineering Management and Communication **</td>
<td>3</td>
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</table>

Total Credit Hours: 30

**Advanced Technical Requirements**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>EET 3329C</td>
<td>Communication Systems **</td>
<td>3</td>
</tr>
<tr>
<td>EET 3732</td>
<td>Linear Control Systems **</td>
<td>3</td>
</tr>
<tr>
<td>EET 4158C</td>
<td>Linear Integrated Circuits and Systems **</td>
<td>3</td>
</tr>
<tr>
<td>ETP 4240C</td>
<td>Power Electronics **</td>
<td>3</td>
</tr>
<tr>
<td>CET 4190C</td>
<td>Digital Signal Processing **</td>
<td>3</td>
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</table>

Total Credit Hours: 15

**Departmental Exit Requirement**

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<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>EET 4910</td>
<td>Senior Design Proposal</td>
<td>1</td>
</tr>
<tr>
<td>EET 4950</td>
<td>Senior Design Project **</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 4

**Foreign Language Requirements (if not previously met)**

Total Hours: 0-8

**Advanced Technical Electives- 3 Hours**

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**Program Graduation Requirements**

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**Electrical and Computer Technology - Computer Systems Concentration (B.S.E.C.E.T)**

Division of Engineering, Computer Programming, and Technology

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<tbody>
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<td>EET 1141C</td>
<td>SEMICONDUCTOR DEVICES AND CIRCUITS *</td>
<td>3</td>
</tr>
<tr>
<td>EET 3081C</td>
<td>CIRCUIT ANALYSIS I **</td>
<td>3</td>
</tr>
<tr>
<td>CET 2113C</td>
<td>DIGITAL SYSTEMS II *</td>
<td>3</td>
</tr>
<tr>
<td>CET 2123C</td>
<td>FUNDAMENTALS OF MICROPROCESSORS *</td>
<td>3</td>
</tr>
<tr>
<td>ETS 2542C</td>
<td>PROGRAMMABLE LOGIC CONTROLLERS I *</td>
<td>3</td>
</tr>
<tr>
<td>ETS 1210C</td>
<td>INTRODUCTION TO PHOTONICS *</td>
<td>3</td>
</tr>
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</table>

Total Credit Hours: 18

Engineering Technology Core Requirements

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<td>3</td>
</tr>
<tr>
<td>CET 3464C</td>
<td>SOFTWARE APPLICATIONS IN ENGINEERING TECHNOLOGY **</td>
<td>3</td>
</tr>
<tr>
<td>CET 4367C</td>
<td>MICROCONTROLLER DEVICES *</td>
<td>4</td>
</tr>
<tr>
<td>EGN 3428</td>
<td>ENGINEERING MATHEMATICAL ANALYSIS **</td>
<td>4</td>
</tr>
<tr>
<td>EGN 3443</td>
<td>Statis Theory for Enig Tech *</td>
<td>3</td>
</tr>
<tr>
<td>EET 3086C</td>
<td>CIRCUIT ANALYSIS II **</td>
<td>4</td>
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<tr>
<td>ETP 4241</td>
<td>POWER SYSTEMS AND ENERGY CONVERSION **</td>
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<td>ETI 3116</td>
<td>QUALITY ASSURANCE WITH TESTING METHODS **</td>
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<td>ETS 3663</td>
<td>ENGINEERING MANAGEMENT AND COMMUNICATION **</td>
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Total Credit Hours: 30

Advanced Technical Requirements

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<th>Title</th>
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<tr>
<td>CET 3136C</td>
<td>LOGIC DEVICES PROGRAMMING **</td>
<td>3</td>
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<tr>
<td>CET 4126C</td>
<td>MICROPROCESSOR PROGRAMMING **</td>
<td>3</td>
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<td>CET 4663</td>
<td>COMPUTER AND NETWORK SECURITY **</td>
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<tr>
<td>CET 4370C</td>
<td>ADVANCED PROGRAMMING APPLICATIONS **</td>
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<td>CET 4542</td>
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<td>EET 4910</td>
<td>SENIOR DESIGN PROPOSAL</td>
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<tr>
<td>EET 4950</td>
<td>SENIOR DESIGN PROJECT **</td>
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Total Credit Hours: 4

Foreign Language Requirements (if not previously met)

Total Hours: 0-8

Advanced Technical Electives - 3 Hours

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<td>CIRCUIT ANALYSIS II **</td>
<td>4</td>
</tr>
<tr>
<td>ETP 4241</td>
<td>POWER SYSTEMS AND ENERGY CONVERSION **</td>
<td>3</td>
</tr>
<tr>
<td>ETI 3116</td>
<td>QUALITY ASSURANCE WITH TESTING METHODS **</td>
<td>3</td>
</tr>
<tr>
<td>ETS 3663</td>
<td>ENGINEERING MANAGEMENT AND COMMUNICATION **</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 30

**Advanced Technical Electives - 3 Hours**

Any upper-level (3000/4000-level) course offered or approved by the ECET department outside the declared concentration

+ This course must be completed with a grade of C or better.

* This course has a prerequisite; check description in Valencia catalog.

(Gr) Denotes a Gordon Rule course.

**Program Graduation Requirements**

- A minimum adjusted grade point average (GPA) of 2.0 on all 3000 and above course work taken at Valencia.
- Fulfill the requirements for the chosen concentration.
- Complete, at Valencia at least 25% of the 130 hour degree program (33 credits), based upon the Florida College Systems’s requirement of a 2+2 admission into the baccalaureate program.
- Two years of one foreign language in high school, or one year foreign language in college (or equivalent proficiency exam) prior to graduation.
- Complete the General Education requirements including the required Gordon Rule.
- Total Semester Hours required - 130.

**Transfer Notes:**

- Specialized courses may not be offered every session or on every campus.
- Satisfy Valencia’s General Education requirements and Gordon Rule requirements unless you hold an Associate in Arts or Bachelor’s degree from a regionally accredited institution.
- Students transferring from a regionally accredited institution with an A.A. degree with the GEP requirements of that institution met have thereby satisfied Valencia GEP requirements.
- Students entering a Valencia undergraduate program and having a previously earned baccalaureate degree from an accredited institution have thereby satisfied Valencia GEP requirements. (See also the section on the GEP found elsewhere in the catalog.)
- Substitutions for 3000 and 4000 level courses are on a course-by-course basis and MUST be approved by the department chair.
- Course transferred must be formally evaluated for equivalency credit. The student must provide all supporting information to the B.S.E.C.E.T Department for this evaluation.