

# ELECTRICAL AND COMPUTER ENGINEERING TECHNOLOGY

## Bachelor of Science Degree in Electrical and Computer Engineering Technology (CIP# 1101503031)

### 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. Degree, 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 Concentrations

- Electrical/Electronic Systems
- Computer Systems

## 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

- Have a broad understanding of technical and professional skills and concepts and apply them in the analysis of engineering and technology problems for the development of effective solutions for success in industry and/or higher education.
- Effectively communicate and work in cross-functional teams while adhering to high standards of ethics and professional responsibility.

## 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

For salary and wage information, visit: [www.salary.com](http://www.salary.com) (<http://www.salary.com>)

## Contacts

For more information about the program or admission requirements, please contact Nancy Girgis, Program Advisor, at 407-582-5623 or [ngirgis@valenciacollege.edu](mailto:ngirgis@valenciacollege.edu).

For the most up-to-date information, visit the ECET program website (<https://net1.valenciacollege.edu/future-students/degree-options/bachelors/electrical-and-computer-engineering-technology/>).

## Accreditation

The Electrical and Computer Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org) (<http://www.abet.org/>).

Further details about the accreditation of the program can be found by searching the institution name (Valencia College (<https://amspub.abet.org/aps/name-search/?searchType=institution&keyword=Valencia%20College>)) through the ABET website.

## Application Fee

There is no application fee for this program.

## Admission Requirements

Students must submit official transcripts from all prior colleges and universities and must meet the following criteria:

- Completion of one of the following:
  - A.A. Degree from a regionally accredited institution.
  - A.S. degree in Electronics Engineering Technology from a regionally accredited institution with a minimum of 60 semester hours of course work, including 15 semester hours of transferable General Education courses.
  - Articulated specialization in Audio Engineering Technology within the Sound and Music A.S. degree at Valencia College.
- Completion of MAC 2311C (Calculus I), MAC 2312C (Calculus II) and PHY 2048C (Physics with Calculus I) or equivalent with the grade of C or better.

Students who have earned an Associate degree in another field must meet with the B.S.E.C.E.T program advisor for formal evaluation of their eligibility for admission.

### Notes:

- Students initially entering Valencia College are advised to complete the Electronics Engineering Technology A.S to B.S.E.C.E.T pathway. This pathway could satisfy all required general education, program common prerequisites, and lower-level technical courses and student will be eligible to enroll in the upper-level core courses upon the admission. Please see the program advisor for further details.
- A.S. Electronic Engineering Technology and A.S. Audio Engineering Technology Specialization articulated to the B.S. ECET program students can complete the Advanced Electronic Technician certificate to satisfy the common prerequisites (MAC 2311C (Calculus I), MAC 2312C (Calculus II) and PHY 2048C (Physics with Calculus I) or equivalent) admission requirement for the B.S. ECET program as well as be eligible for the financial aid for courses in the certificate.

## 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.

## Alternative Ways to Earn Credit

As a Valencia student, you may be awarded appropriate credit for your demonstrated knowledge gained from experiential learning. This learning may result from an industry certification, in service training or employment experiences. To request course credit based on alternative ways, students are required to provide documentation of the industry certification/licensure, employment records, or portfolio and demonstrate acquired knowledge, skills, and competencies linked to the learning outcomes for the course(s) for which students are seeking credit.

Please contact the B.S.E.C.E.T program advisor for the Award of Credit Request Form and the required documentation.

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

Division of Engineering, Computer Programming, and Technology

### Program Outcomes

Student will demonstrate:

- (1) an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
- (2) an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- (3) an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- (4) an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
- (5) an ability to function effectively as a member as well as a leader on technical teams.

## Valencia General Education Requirements

<b>Communication</b>		<b>6</b>
ENC 1102	FRESHMAN COMPOSITION II <sup>++~</sup>	
SPC 1608	FUNDAMENTALS OF SPEECH	
or SPC 1017	INTERPERSONAL COMMUNICATION	
<b>Social Science and/or Humanities [See Gen. Ed. Institutional Hours (GR)] <sup>++~</sup></b>		<b>3</b>
<b>Mathematics</b>		<b>3</b>
MAC 2312	CALCULUS WITH ANALYTIC GEOMETRY II <sup>++~</sup>	
<b>Science</b>		<b>6</b>
PHY 2048C	GENERAL PHYSICS WITH CALCULUS I <sup>++~</sup>	

**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] <sup>++~</sup>** **3**

**Total Credit Hours** **21**

**Note: Valencia A.S. EET to B.S. ECET pathway students already satisfy all Valencia General Education requirements. However, students may have to take 13 additional hours of electives to satisfy ECET program's total semester hours of 130. For more information, please see the program advisor.**

## Engineering Technology Core Requirements

CET 3464C	SOFTWARE APPLICATIONS IN ENGINEERING TECHNOLOGY <sup>++</sup>	3
CET 4367C	MICROCONTROLLER DEVICES <sup>++</sup>	4
COP 3275C	C/C++ PROGRAMMING FOR ENGINEERING TECHNOLOGY <sup>++</sup>	3
EET 3086C	CIRCUIT ANALYSIS <sup>++</sup>	4
EGN 3428	ENGINEERING MATHEMATICAL ANALYSIS <sup>++</sup>	4
EGN 3443	PROBABILITY AND STATISTICS FOR ENGINEERING TECHNOLOGY <sup>++</sup>	3
ETP 4241	POWER SYSTEMS AND ENERGY CONVERSION <sup>++</sup>	3
ETI 3116	QUALITY ASSURANCE WITH TESTING METHODS <sup>++</sup>	3
ETS 3663	ENGINEERING MANAGEMENT AND COMMUNICATION <sup>++</sup>	3
<b>Total Credit Hours</b>		<b>30</b>

## Advanced Technical Requirements

CET 3136C	LOGIC DEVICES PROGRAMMING <sup>++</sup>	3
CET 4663	COMPUTER AND NETWORK SECURITY <sup>++</sup>	3
CET 4370C	ADVANCED PROGRAMMING APPLICATIONS <sup>++</sup>	3
CET 4542	COMPUTER ARCHITECTURE AND DATA COMMUNICATION <sup>++</sup>	3
<b>Total Credit Hours</b>		<b>12</b>

## Departmental Exit Requirement

EET 4910	SENIOR DESIGN PROPOSAL	1
EET 4950	SENIOR DESIGN PROJECT <sup>++</sup>	3
<b>Total Credit Hours</b>		<b>4</b>

## 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 **3**

<sup>+</sup> This course must be completed with a grade of C or better.

<sup>\*</sup> This course has a prerequisite; check description in Valencia catalog.

~ This is a general education course.

(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 total 130 hour degree program (33 credits), based upon the Florida College System'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.
- Satisfy the civic literacy requirement. As per Florida Rule 6A-10.04213\*, prior to the award of an associate in arts or baccalaureate degree, students initially entering a Florida College System institution in the 2021-22 school year, and thereafter must demonstrate competency in civic literacy prior to graduation by:
  - a. receiving a passing score on the Florida Civic Literacy Exam (FCLE), and
  - b. successful completion of one of the following:
    - successfully passing POS 2041 U.S. GOVERNMENT or AMH 2020 U.S. HISTORY 1877 TO PRESENT or
    - successfully passing a prescribed assessment: AP Government & Politics: United States Test\*\* (passing score =3), or AP United States History Test\*\* (passing score = 4)\*, or CLEP American Government\*\* (passing score = 50)

\* rule amendment expected approval Fall 2021  
 \*\*receiving a passing score will satisfy both the FCLE and course requirements.
- 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.
- 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.

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

Division of Engineering, Computer Programming, and Technology

### Program Outcomes

Student will demonstrate:

- (1) an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
- (2) an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
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### Valencia General Education Requirements

<b>Communication</b>		<b>6</b>
ENC 1102	FRESHMAN COMPOSITION II <sup>++~</sup>	
SPC 1608	FUNDAMENTALS OF SPEECH	
	or SPC 1017 INTERPERSONAL COMMUNICATION	
<b>Social Sciences: See Gen. Ed. Institutional Requirement (GR) <sup>++~</sup></b>		<b>3</b>
<b>Mathematics</b>		<b>3</b>
MAC 2312	CALCULUS WITH ANALYTIC GEOMETRY II <sup>++~</sup>	
<b>Science</b>		<b>6</b>
PHY 2048C	GENERAL PHYSICS WITH CALCULUS I <sup>++~</sup>	
<b>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] <sup>++~</sup></b>		<b>3</b>
<b>Total Credit Hours</b>		<b>21</b>

**Note: Valencia A.S. EET to B.S. ECET pathway students already satisfy all Valencia General Education requirements. However, students may have to take 13 additional hours of electives to satisfy ECET program's total semester hours of 130. For more information, please see the program advisor.**

### Engineering Technology Core Requirements

CET 3464C	SOFTWARE APPLICATIONS IN ENGINEERING TECHNOLOGY <sup>++</sup>	3
CET 4367C	MICROCONTROLLER DEVICES <sup>++</sup>	4
COP 3275C	C/C++ PROGRAMMING FOR ENGINEERING TECHNOLOGY <sup>++</sup>	3
EET 3086C	CIRCUIT ANALYSIS <sup>++</sup>	4
EGN 3428	ENGINEERING MATHEMATICAL ANALYSIS <sup>++</sup>	4

EGN 3443	PROBABILITY AND STATISTICS FOR ENGINEERING TECHNOLOGY <sup>++</sup>	3
ETP 4241	POWER SYSTEMS AND ENERGY CONVERSION <sup>++</sup>	3
ETI 3116	QUALITY ASSURANCE WITH TESTING METHODS <sup>++</sup>	3
ETS 3663	ENGINEERING MANAGEMENT AND COMMUNICATION <sup>++</sup>	3
<b>Total Credit Hours</b>		<b>30</b>

### Advanced Technical Requirements

EET 3732	LINEAR CONTROL SYSTEMS <sup>++</sup>	3
EET 4158C	LINEAR INTEGRATED CIRCUITS AND SYSTEMS <sup>++</sup>	3
ETP 4240C	POWER ELECTRONICS <sup>++</sup>	3
CET 4190C	DIGITAL SIGNAL PROCESSING <sup>++</sup>	3
<b>Total Credit Hours</b>		<b>12</b>

### Departmental Exit Requirement

EET 4910	SENIOR DESIGN PROPOSAL	1
EET 4950	SENIOR DESIGN PROJECT <sup>++</sup>	3
<b>Total Credit Hours</b>		<b>4</b>

### 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 3

+ 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.

(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 System'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.
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- Total Semester Hours required - 130.

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Division of Engineering, Computer Programming, and Technology

### Program Outcomes

Student will demonstrate:

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- (5) an ability to function effectively as a member as well as a leader on technical teams.

## Technical Requirements

EET 1214C	INTRODUCTION TO ENGINEERING TECHNOLOGY	3
CET 2114C	DIGITAL SYSTEMS *	3
CET 2123C	FUNDAMENTALS OF MICROPROCESSORS *	3
EET 2035C	ELECTRICAL CIRCUITS *	3
EET 1141C	SEMICONDUCTOR DEVICES AND CIRCUITS *	3
EET 2325C	RF COMMUNICATION *	3
ETS 2542C or ETS 1210C	PROGRAMMABLE LOGIC CONTROLLERS I * INTRODUCTION TO PHOTONICS	3
<b>Total Credit Hours</b>		<b>21</b>

## Engineering Technology Core Requirements

CET 3464C	SOFTWARE APPLICATIONS IN ENGINEERING TECHNOLOGY **	3
CET 4367C	MICROCONTROLLER DEVICES **	4
COP 3275C	C/C++ PROGRAMMING FOR ENGINEERING TECHNOLOGY **	3
EET 3086C	CIRCUIT ANALYSIS **	4
EGN 3428	ENGINEERING MATHEMATICAL ANALYSIS **	4
EGN 3443	PROBABILITY AND STATISTICS FOR ENGINEERING TECHNOLOGY **	3
ETP 4241	POWER SYSTEMS AND ENERGY CONVERSION **	3
ETI 3116	QUALITY ASSURANCE WITH TESTING METHODS **	3
ETS 3663	ENGINEERING MANAGEMENT AND COMMUNICATION **	3
<b>Total Credit Hours</b>		<b>30</b>

## Advanced Technical Requirements

CET 3136C	LOGIC DEVICES PROGRAMMING **	3
CET 4663	COMPUTER AND NETWORK SECURITY **	3
CET 4370C	ADVANCED PROGRAMMING APPLICATIONS **	3
CET 4542	COMPUTER ARCHITECTURE AND DATA COMMUNICATION **	3
<b>Total Credit Hours</b>		<b>12</b>

## Departmental Exit Requirement

EET 4910	SENIOR DESIGN PROPOSAL	1
EET 4950	SENIOR DESIGN PROJECT **	3
<b>Total Credit Hours</b>		<b>4</b>

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<b>Total Hours</b>	<b>0-8</b>
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## Advanced Technical Electives- 3 Hours

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## Program Graduation Requirements

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- \* rule amendment expected approval Fall 2021  
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## Transfer Notes:

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Division of Engineering, Computer Programming, and Technology

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EGN 3443	PROBABILITY AND STATISTICS FOR ENGINEERING TECHNOLOGY **	3
ETP 4241	POWER SYSTEMS AND ENERGY CONVERSION **	3
ETI 3116	QUALITY ASSURANCE WITH TESTING METHODS **	3

ETS 3663	ENGINEERING MANAGEMENT AND COMMUNICATION **	3
<b>Total Credit Hours</b>		<b>30</b>

## Advanced Technical Requirements

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EET 4158C	LINEAR INTEGRATED CIRCUITS AND SYSTEMS **	3
ETP 4240C	POWER ELECTRONICS **	3
CET 4190C	DIGITAL SIGNAL PROCESSING **	3
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## Departmental Exit Requirement

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**Total Hours** 0-8

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