ELECTRONICS ENGINEERING TECHNOLOGY

Electronics Engineering Technology with Specializations in:

- Electronics
- Laser and Photonics
- Robotics and Mechatronics

Associate in Science Degree (CIP# 1615030301)

This program is designed to produce highly skilled technicians capable of assisting in the design, production, operation and servicing of electronics, optics, photonics, lasers, telecommunication and wireless systems and equipment. The specializations will provide an up-to-date curriculum in electronics engineering, lasers and photonics, and telecommunication and wireless technology. Valencia is a Center of Electronics Emphasis in Florida and is equipped with special test equipment and advanced laboratories, which provide the latest in hands-on experience.

Students are strongly encouraged to consult a career program advisor in the department office for assistance in determining the best education plan for their career goals.

Although scheduling may not always provide for the following progression of courses, students should use the foundation, intermediate and advanced course sequence as a guide in program planning.

All degree-seeking students must satisfy entry testing requirements and satisfactorily complete all mandatory courses in reading, student success, mathematics, English, and English for Academic Purposes in which the student is placed.

Alternative Ways to Earn Credit

Graduates of specific programs at Orange County Technical Colleges may be eligible to receive college credit for specific courses in this program. You may also be eligible to receive credit toward this degree if you have earned an approved industry certification or Career Pathways credit. For more information and requirements, go to valenciacollege.edu/asdegrees/transferagreements.cfm (http://valenciacollege.edu/asdegrees/transferagreements.cfm) to view the award of credit options. Eligible students should contact the related academic department and/or Career Program Advisor at Valencia for the award of credit.

Technical Certificates

The Electronics Engineering A.S. degree also offers the following college credit certificate programs. These certificate programs can put you on the fast-track to reaching your career goals. They are designed to equip you with a specialized skill set for entry-level employment or to upgrade your skills for job advancement. Most can be completed in one year or less, and all of the courses in the certificate programs are embedded in the A.S. degree. Click on the Certificate tab at the top of the page for more information about the course requirements.

- Laser and Photonics Technician (12 credits) (CIP # 0615030411)
- Robotics and Simulation Technician (12 credits) (CIP # 0615040514)
- Basic Electronics Technician (14 credits) (CIP # 0615030310)

- Advanced Electronics Technician (31 credits) (CIP # 0615030309)

Start Right

Degree-seeking students enrolling at Valencia for the first time will have a limited range of courses from which to choose for their first 18 college-level credits. Within the first 18 college credit hours, you will be required to take ENC1101 (3 credits), and if applicable, SLS 1122 (3 credits) and a mathematics course appropriate to your selected meta-major (3 credits). The remaining courses will be chosen from the General Education Core Courses in humanities (3 credits), science (3 credits), or social science (3 credits), and/or the introductory courses within the A.S. degree programs. For specific courses see the Foundation Courses on the “Program Requirements” tab. For course sequencing recommendations, see your Career Program Advisor or create an education plan by logging into Atlas, clicking on the LifeMap tab and clicking My Education Plan.

Potential Careers

- Electronics Technician
- Field Technician
- System Technician
- Electronics Tester
- Fiber Optics Specialist
- Instrumentation Technician
- Telecommunication Technician/Specialist
- Robotics and Simulation Technician
- Laser Specialist

Salary & Earnings Information

For salary and wage information, visit: www.floridawages.com (http://www.floridawages.com).

Contacts

Future Students
Contact Enrollment Services at enrollment@valenciacollege.edu or call 407-582-1507.

Current Students
Deb Hall, Program Chair, West Campus: 407-582-1963
dhall@valenciacollege.edu

Jon Sowell, Career Program Advisor, West Campus: 407-582-1973
jsowell@valenciacollege.edu

Internship and Workforce Services

If you need assistance with job resources or in locating an internship, please visit: valenciacollege.edu/internship (http://valenciacollege.edu/internship).

Program Requirements

Foundation Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLS 1122</td>
<td>New Student Experience</td>
<td>3</td>
</tr>
<tr>
<td>ENC 1101</td>
<td>FRESHMAN COMPOSITION I ~*</td>
<td>3</td>
</tr>
<tr>
<td>MTB 1329</td>
<td>MATHEMATICS FOR ENGINEERING TECHNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>EET 1214C</td>
<td>INTRODUCTION TO ENGINEERING TECHNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>CET 2112C</td>
<td>DIGITAL SYSTEMS I ~*</td>
<td>3</td>
</tr>
<tr>
<td>Humanities</td>
<td>See Gen. Ed. Core Requirements ~</td>
<td>3</td>
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<tr>
<td>MAC 1105</td>
<td>College Algebra ~*</td>
<td>3</td>
</tr>
<tr>
<td>SPC 1608</td>
<td>FUNDAMENTALS OF SPEECH ~</td>
<td>3</td>
</tr>
</tbody>
</table>

* indicates a mandatory course
~ indicates a required course
Electronics Specialization

Program Outcomes
- Maintain digital and analog devices and circuits.
- Analyze components associated with digital and analog electronic systems.
- Demonstrate proficiency in the use of electronic equipment and devices.
- Assist in the design, operation, and troubleshooting of electronic systems.
- Analyzing electronic devices and circuits using computer simulations.
- Solve electronic devices and systems using mathematical concepts.
- Accept professional and ethical responsibilities of the engineering technology profession.
- Communicate effectively in technical and non-technical environments.

Intermediate Courses
- CET 2113C DIGITAL SYSTEMS II * 3
- CET 2123C Fund of Microprocessors * 3
- EET 1141C SEMICONDUCTOR DEVICES AND CIRCUITS * 3
- ETS 1210C INTRODUCTION TO PHOTONICS * 3

Select one of the following:
- EET 1036C FUNDAMENTALS OF DC AND AC CIRCUITS * 3
- EET 1015C FUNDAMENTALS OF DC CIRCUITS & EET 1025 and FUNDAMENTALS OF AC CIRCUITS * 3

Specialization (See below) 23

Total Credit Hours 68

+ 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.

Robotics and Mechatronics Specialization

Program Outcomes
- Analyze components associated with robotic, modeling and simulation, and electro-mechanical systems.
- Demonstrate proficiency in the use of robotic, simulation, and electro-mechanical equipment and devices.
- Analyze electronics/robotics devices and circuits using computer simulations.
- Assist in the design, operation, and troubleshooting of electronic/robotics systems.
- Apply basic mathematical and engineering concepts to technical problem solving.
- Accept professional and ethical responsibilities of the engineering technology profession.
- Communicate effectively in technical and non-technical environments.

Intermediate Courses
- EET 2142C INTEGRATED CIRCUITS * 3
- ETS 2511C Electromechanical Systems * 3
- EET 2325C RF Communication * 3
- EET 2365C WIRELESS AND DATA COMMUNICATIONS * 3
- ETS 2542C PROGRAMMABLE LOGIC CONTROLLERS I * 3

Electronics Engineering Technology Electives * 8

Total Credit Hours 23

+ This course has a prerequisite; check description in Valencia catalog.
* Students planning to pursue Valencia's Bachelor of Science in Electrical and Computer Engineering Technology are advised to take up to three credit hours in a Gordon Rule writing course in either Humanities or Social Science.

Laser and Photonics Specialization

Program Outcomes
- Maintain laser and photonics components, devices and systems.
- Analyze fiber optics and optical detectors components associated with fiber optics systems.
- Demonstrate fundamental knowledge in the use of laser and photonics devices.
- Solve optical and photonics problems using mathematical concepts.
- Analyze digital and analog circuits using Electro-Optical devices.
- Demonstrate appropriate safety procedures.
- Assist in the design, operation, and troubleshooting of laser and photonics equipment and systems.
- Analyze laser and photonics devices/circuits using computer simulations.
- Accept professional and ethical responsibilities of the engineering technology profession.
- Communicate effectively in technical and non-technical environments.

Intermediate Courses
- ETS 2220C Introduction to Fiber Optics * 3
- ETS 2221C Intro to Electro-Optical Devic * 3
- ETS 2230C Introduction to Laser * 3
- EET 2325C RF Communication * 3
- EET 2365C WIRELESS AND DATA COMMUNICATIONS * 3

Electronics Engineering Technology Electives * 8

Total Credit Hours 23

+ This course has a prerequisite; check description in Valencia catalog.
* Students planning to pursue Valencia's Bachelor of Science in Electrical and Computer Engineering Technology are advised to take up to three credit hours in a Gordon Rule writing course in either Humanities or Social Science.
Program Outcomes:

- Assist in the design, operation, and troubleshooting of electronic systems.
- Demonstrate proficiency in laboratory practices.
- Demonstrate proficiency in the use of electronic equipment and devices.
- Demonstrate proficiency in DC, AC, analog and digital circuits and network analysis.
- Demonstrate proficiency in design and analysis of solid-state and linear integrated circuits.
- Solve electronic devices and systems using mathematical concepts.
- Analyzing electronics devices and circuits using computer simulations.
- Understand, install, configure and troubleshoot issues relating to computer hardware and software.
- Engage effectively in interpersonal, oral, visual, and written communication.
- Demonstrate employability skills.

Electronics Engineering Technology Electives

The Electives requirement may be satisfied with any course(s) in the Course Descriptions section of the Valencia catalog with the subject prefix of CET, EET, ETS, ETP.

Notes:

Specialized program courses are offered on the West Campus.

Once you complete your A.S. degree in Electronics Engineering, you can now continue on and get your Bachelor of Science from Valencia in Electrical and Computer Engineering Technology.

Advanced Electronics Technician

Technical Certificate

This program is designed to prepare individuals for employment as electrical and electronics technicians, electronic testers or in related occupations in electronics. The program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the manufacturing career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the manufacturing career cluster. The content includes but is not limited to DC circuits, AC circuits, solid-state devices, analog circuits, and digital circuits. Integrated into this content will be communications skills, leadership skills, human relations skills, employability skills, safe and efficient work practices, use of circuit diagrams and schematics, soldering, laboratory practices and technical recording and reporting. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Electronics Engineering industry: planning, management, finance, technical and product skills, underpiling principles of technology, labor issues, community issues and health, safety, and environmental issues.

Program Outcomes:

- Assist in the design, operation, and troubleshooting of electronic systems.
- Demonstrate proficiency in laboratory practices.
- Demonstrate proficiency in the use of electronic equipment and devices.
- Demonstrate proficiency in DC, AC, analog and digital circuits and network analysis.
- Demonstrate proficiency in design and analysis of solid-state and linear integrated circuits.
- Solve electronic devices and systems using mathematical concepts.
- Analyzing electronics devices and circuits using computer simulations.
- Understand, install, configure and troubleshoot issues relating to computer hardware and software.
- Engage effectively in interpersonal, oral, visual, and written communication.
- Demonstrate employability skills.

Basic Electronics Technician

Technical Certificate

This program is designed to prepare individuals for employment as electrical and electronics technicians, electronic testers or in related occupations in electronics. This program includes the basic electronics competencies as identified by the electronics industry as prerequisite for all technical programs. This program prepares individuals to assemble, install, operate, maintain, troubleshoot and repair basic electronic equipment used in industry. It also prepares students to enter advanced training and education in specialized electronics-related fields. The content includes, but is not limited to, DC and AC circuits and digital systems. Integrated into this content will be communication, leadership, human relations, and employability skills; safe and efficient work practices; use of circuit diagrams and schematics; soldering; laboratory practices; and technical recording and reporting.

Program Outcomes:

- Assist in the design, operation, and troubleshooting of electronic systems.
- Demonstrate proficiency in the use of electronic equipment and devices.
- Solve electronic devices and systems using mathematical concepts.
- Analyze electronics devices and circuits using computer simulations.

Notes:

^ EET 1036 (6 credits) may be taken in place of both EET 1015C and EET 1025C.

Technical Electives

<table>
<thead>
<tr>
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<tr>
<td>MTB 1329</td>
<td>MATHEMATICS FOR ENGINEERING TECHNOLOGY</td>
<td>3</td>
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<tr>
<td>EET 1214C</td>
<td>INTRODUCTION TO ENGINEERING TECHNOLOGY</td>
<td>3</td>
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<tr>
<td>CET 2112C</td>
<td>DIGITAL SYSTEMS I</td>
<td>3</td>
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<tr>
<td>CET 2113C</td>
<td>DIGITAL SYSTEMS II</td>
<td>3</td>
</tr>
<tr>
<td>CET 2123C</td>
<td>Fund of Microprocessors</td>
<td>3</td>
</tr>
<tr>
<td>EET 1015C</td>
<td>FUNDAMENTALS OF DC CIRCUITS</td>
<td>3</td>
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<tr>
<td>EET 1025C</td>
<td>FUNDAMENTALS OF AC CIRCUITS</td>
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<td>INTEGRATED CIRCUITS</td>
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<tr>
<td>EET 2325C</td>
<td>RF Communication</td>
<td>3</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>EET, ETS, or ETP Prefixes only</td>
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</table>

Total Credit Hours: 31

* This course has a prerequisite; check description in Valencia catalog.
^ EET 1036 (6 credits) may be taken in place of both EET 1015C and EET 1025C.
Laser and Photonics Technician

**Technical Certificate**

This program is designed to prepare individuals for employment as laser and optics technicians or in related occupations in laser and optics. This program includes the basic competencies as identified by the laser and optics industry. This program prepares individuals to assemble, install, operate, maintain, troubleshoot and repair basic laser and optical devices and equipment used in industry and prepares individuals to enter advanced training and education in specialized laser and optics-related fields. The content includes, but is not limited to, laser circuits, electro-optical devices and circuits, DC and AC circuits. Integrated into this content will be communication, leadership, human relations, employability skills, safe and efficient work practices, use of circuit diagrams and schematics, soldering, laboratory practices, and technical recording and reporting.

**Program Outcomes**

- Assist in the design, operation, and troubleshooting of laser and photonics equipment and systems.
- Solve optical and photonics problems using mathematical concepts.
- Maintain laser and photonics components, devices and systems.
- Construct digital and analog circuits using Electro-Optical devices.

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<td>INTRODUCTION TO PHOTONICS</td>
<td>3</td>
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<td>ETS 2220C</td>
<td>Introduction to Fiber Optics</td>
<td>3</td>
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<td>ETS 2230C</td>
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<tr>
<td>ETS 1603C</td>
<td>Fund of Robotics &amp; Simulation</td>
<td>3</td>
</tr>
<tr>
<td>ETS 2542C</td>
<td>PROGRAMMABLE LOGIC CONTROLLERS I</td>
<td>3</td>
</tr>
<tr>
<td>ETS 2604C</td>
<td>Robotics Applications</td>
<td>3</td>
</tr>
<tr>
<td>EET 2365C</td>
<td>WIRELESS AND DATA COMMUNICATIONS</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours** 12

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

**Notes:**

All certificate courses are offered on the West campus.

Specialized courses may not be offered every session or on every campus.

Robotics and Mechatronics Technician

**Technical Certificate**

This program prepares individuals to install, maintain and troubleshoot general robot systems and simulators. Graduates of this technical program will be prepared to enter advanced training and education in specialized Robotics and Simulation related fields. The content includes, but is not limited to: Robotic Applications, Modeling and Simulation, and Virtual Reality Environment. Integrated into this program will be communications skills, leadership skills, human relations skills, employability skills, safe and efficient work practices, use of circuit diagrams and schematics, laboratory practices, and technical recording and reporting.

**Program Outcomes**

- Analyze components associated with robotic, modeling and simulation, and electro-mechanical systems.
- Demonstrate proficiency in the use of robotic, simulation, and electro-mechanical equipment and devices.
- Analyze electronics/robotics devices and circuits using computer simulations.
- Assist in the design, operation, and troubleshooting of electronic/robotics systems.

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<td>ETS 1603C</td>
<td>Fund of Robotics &amp; Simulation</td>
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**Total Credit Hours** 12

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

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