

# SEMICONDUCTOR ENGINEERING TECHNOLOGY

## Associate in Science degree (CIP# 1615061600)

- Semiconductor Engineering Technology A.S.
- A.S. to B.S. Semiconductor Engineering Technology

### Semiconductor Engineering Technology A.S.

Semiconductor Engineering Technology associate in science degree program is designed to prepare students for entry-level positions in the semiconductor industry. It also provides the opportunity for individuals currently working in the field to upgrade skills and knowledge for career advancement.

This state-of-the-art program offers a broad background in semiconductor technologies and applications, maintenance, operation, and management of cleanroom facilities including protocols, policies, and regulations for a safe cleanroom environment. Students will also receive specialized courses in semiconductor material processing, wafer preparation, etching, testing, and packaging. Valencia has advanced laboratories with the latest technology and special test equipment.

### A.S. to B.S. Track in Semiconductor Engineering Technology

The A.S. to B.S. Track in Semiconductor Engineering Technology provides students the opportunity to complete the bachelor's degree in Semiconductor Engineering Technology at the University of Central Florida\*. Students should consult with their Student Success Coach to develop the best education pathway towards their degree.

\*pending State Board of Governors approval; anticipated launch Fall 2027

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

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 toward this Degree

Completers of specific programs at Orange Technical College and Osceola Technical College, Valencia Accelerated Skills Training (AST), as well as other institutions may be eligible to receive college credit for courses in this program. Students may also be eligible to receive credit toward this degree if they have earned one of the approved Gold Standard industry certifications or Career Pathways credit. To learn more about Valencia's award of credit options, visit <https://valenciacollege.edu/academics/programs/as-degree/alternative-award-of-credit-agreements.php>. Eligible students should contact the Student Success Coach in their academic department for more information about the requirements for the award of credit.

### College Credit Technical Certificates

The Semiconductor Engineering Technology A.S. degree also offers the following college credit certificate program. This certificate can put you on the fast-track to reaching your career goals. The certificate is designed

to equip students with a specialized skill set for entry-level employment as a cleanroom facility operator and manager or to upgrade your skills for career advancement. The certificate can be completed in one year or less, and all the courses in the certificate are embedded in the A.S. degree. You can earn the certificates as you progress through your A.S. Degree or as a separate, stand-alone credential. Click on the Technical Certificates tab at the top of the page for more information about the certificate requirements.

- Semiconductor Cleanroom Operator (18 credits) (CIP# 0615061601)

### 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 Student Success Coach or create an education plan by logging into Atlas, clicking on the LifeMap tab and clicking My Education Plan.

### Potential Careers

- Semiconductor Technician
- Semiconductor Assembly Technician
- Semiconductor Processing Technician
- Semiconductor Manufacturing Technician
- Cleanroom facility operator/manager
- Semiconductor Fabrication Technician
- Cleanroom Maintenance Technician
- Semiconductor Equipment Technician
- Semiconductor Packaging Technician

### Salary & Earnings Information

According to the Bureau of Labor Statistics, the average annual pay for a Semiconductor Equipment Technician in the United States is between \$45,910 and \$79,999. For career information related to this program, please visit **O\*Net OnLine**.

### Contacts

#### Future Students

To learn more about this program, contact Enrollment Services at [enrollment@valenciacollege.edu](mailto:enrollment@valenciacollege.edu) or 407-582-1507 or visit Electrical and Computer Engineering Technology | Valencia College (<https://catalog.valenciacollege.edu/degrees/associateinscience/engineeringtechnology/electronicsengineeringtechnology/>)

#### Current Students

Your Student Success Coach contact information can be found in Atlas. Log into Atlas, click on the Courses tab, and check your Academic Profile information to find a link to your Coach.

#### **West Campus Faculty Program Chair**

Radu Bunea: 407-582-1360  
[rbunea@valenciacollege.edu](mailto:rbunea@valenciacollege.edu)

#### **Internship and Workforce Services**

If you need assistance with job resources or in locating an internship, please visit: [valenciacollege.edu/internship](https://valenciacollege.edu/internship) (<https://valenciacollege.edu/internship/>)

## Semiconductor Engineering Technology A.S.

The Associate in Science degree program in Semiconductor Engineering Technology is designed to prepare students for entry-level positions in the semiconductor manufacturing industry and the opportunity for individuals currently working in the field to upgrade skills and knowledge for career advancement. The program has advanced laboratories with the latest technology and special test equipment.

### Program Learning Outcomes:

1. Maintain and operate in a cleanroom facility
2. Implement the required policies, practices, and regulations for working in a safe cleanroom environment
3. Basic understanding of semiconductor material and processing
4. Demonstrate basic understanding of semiconductor fabrication processes and packaging
5. Demonstrate knowledge of electronic circuits and operation
6. Demonstrate professional and ethical responsibilities required by the semiconductor industry
7. Engage effectively in interpersonal, oral, visual, and written communication

### Foundation Courses

ENC 1101	FRESHMAN COMPOSITION I <sup>++~</sup>	3
MTB 1329	MATHEMATICS FOR ENGINEERING TECHNOLOGY	3
EET 1214C	INTRODUCTION TO ENGINEERING TECHNOLOGY	3
ETI 1701	INDUSTRIAL SAFETY	3
MAC 1105	COLLEGE ALGEBRA <sup>++~</sup>	3
CHM 1020	CHEMISTRY IN EVERYDAY LIFE <sup>~</sup>	3
or PHY 1020	FUNDAMENTALS OF PHYSICS	
POS 2041	U.S. GOVERNMENT <sup>++~</sup>	3
or AMH 2010	UNITED STATES HISTORY TO 1877	
or AMH 2020	U.S. HISTORY 1877 TO PRESENT	
Humanities	See Gen. Ed. Core Requirement <sup>~</sup>	3
ETS 2160C	SEMICONDUCTOR MANUFACTURING FUNDAMENTALS	3
ETS 2161C	INTRODUCTION TO CLEANROOM OPERATION	3

**Total Credit Hours** 30

### Intermediate Courses

CET 2114C	DIGITAL SYSTEMS	3
EET 2036C	PRINCIPLES OF ELECTRIC CIRCUITS	3
ETS 1603C	FUNDAMENTALS OF ROBOTICS AND SIMULATION	3
ETS 2210C	PRINCIPLES OF PHOTONICS	3

ETS 2162C	INTRODUCTION TO CLEANROOM VACUUM SYSTEMS <sup>*</sup>	3
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**Total Credit Hours** 15

### Advanced Courses

ETS 2542C	PROGRAMMABLE LOGIC CONTROLLERS	3
EET 2141C	SEMICONDUCTOR DEVICES AND CIRCUITS	3
ETS 2165C	SEMICONDUCTOR PACKAGING FUNDAMENTALS <sup>*</sup>	3
ETS 2940C	SEMICONDUCTOR MANUFACTURING PRACTICUM <sup>*</sup>	3

**Total Credit Hours** 12

### Semiconductor Engineering Technology Electives

ETS 2942	INTERNSHIP IN SEMICONDUCTOR MANUFACTURING	3
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Courses with EET or ETS prefix, or Departmental Approval

**Total Credit Hours** 3

## A.S. to B.S. Track in Semiconductor Engineering Technology\*

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### Program learning Outcome

1. Proficiency in semiconductor materials processing and handling
2. Analyze processes used in semiconductor fabrication and packaging.
3. Demonstrate professional and ethical responsibilities required by semiconductor industry.
4. Engage effectively in interpersonal, oral, visual, and written communication

### Foundation Courses

ENC 1101	FRESHMAN COMPOSITION I <sup>++~</sup>	3
POS 2041	U.S. GOVERNMENT <sup>~</sup>	3
or AMH 2010	UNITED STATES HISTORY TO 1877	
or AMH 2020	U.S. HISTORY 1877 TO PRESENT	
Humanities	See Gen. Ed. Core Requirement <sup>~</sup>	6
SPC 1608	FUNDAMENTALS OF SPEECH <sup>++~</sup>	3
or SPC 1608H	FUNDAMENTALS OF SPEECH - HONORS	
EET 1214C	INTRODUCTION TO ENGINEERING TECHNOLOGY	3
ETS 1603C	FUNDAMENTALS OF ROBOTICS AND SIMULATION	3
ETS 2160C	SEMICONDUCTOR MANUFACTURING FUNDAMENTALS	
ETS 2161C	INTRODUCTION TO CLEANROOM OPERATION	

**Total Credit Hours** 21

### Intermediate Courses

CET 2114C	DIGITAL SYSTEMS	3
EET 2036C	PRINCIPLES OF ELECTRIC CIRCUITS	3
ENC 1102	FRESHMAN COMPOSITION II <sup>++~</sup>	3

ETS 2163C	SEMICONDUCTOR FABRICATION PROCESS *	
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ETS 2165C	SEMICONDUCTOR PACKAGING FUNDAMENTALS *	
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<b>Total Credit Hours</b>		<b>9</b>
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#### Advanced Courses

EET 2141C	SEMICONDUCTOR DEVICES AND CIRCUITS	3
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MAC 2311	CALCULUS WITH ANALYTIC GEOMETRY I +*~	4
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MAC 2312	CALCULUS WITH ANALYTIC GEOMETRY II +*~	4
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PHY 2048C	GENERAL PHYSICS WITH CALCULUS I +*~	4
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ETS 2167C	SEMICONDUCTOR VACUUM SYSTEMS AND APPLICATIONS *	
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<b>Total Credit Hours</b>		<b>15</b>
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\*Pending Florida Board of Governors approval - anticipating program launch Fall 2027

### Semiconductor Cleanroom Maintenance Technician Program Outcomes

- Operate cleanroom facilities
- Implement policies, practices, and regulations for a safe cleanroom environment
- Proficiency in semiconductor materials processing and handling

The Semiconductor Cleanroom Maintenance Technician college credit certificate program is designed to provide students with the fundamental knowledge and skills necessary to work as an entry-level cleanroom maintenance and operator. This program is stackable into the Semiconductor Engineering Technology AS program.

#### Program Requirements

MTB 1329	MATHEMATICS FOR ENGINEERING TECHNOLOGY	3
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EET 1214C	INTRODUCTION TO ENGINEERING TECHNOLOGY	3
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ETS 1603C	FUNDAMENTALS OF ROBOTICS AND SIMULATION	3
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ETS 2161C	INTRODUCTION TO CLEANROOM OPERATION	3
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ETS 2160C	SEMICONDUCTOR MANUFACTURING FUNDAMENTALS	3
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Technical Electives		3
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Courses with EET or ETS prefix, or Departmental Approval

<b>Total Credit Hours</b>		<b>18</b>
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Students transferring from Valencia's Accelerated Skills Training (AST) will receive a total number of 9 credits including ETS 1603C FUNDAMENTALS OF ROBOTICS AND SIMULATION ETS 2160C SEMICONDUCTOR MANUFACTURING FUNDAMENTALS, and ETS 2161C INTRODUCTION TO CLEANROOM OPERATION..