

# SEMICONDUCTOR MANUFACTURING TECHNICIAN - UNDERGRADUATE CERTIFICATE

College of Applied and Technical Studies  
www.kent.edu/cats

## About This Program

Unlock the gateway to cutting-edge manufacturing with our Semiconductor Manufacturing Technician certificate, immersing students in a world of semiconductor fabrication, clean room expertise and advanced vacuum technology. From mastering DC circuits to troubleshooting with precision, our program equips graduates to seamlessly bridge the gap between engineering ingenuity and practical production. Join us in revolutionizing technology as semiconductor manufacturing technicians, driving innovation in chip production and circuit board design with every step. Read more...

## Contact Information

- Program Coordinator: **Flavia Princess Nesamani Inbanathan, Ph.D.** | finbanat@kent.edu | 330-675-8962
- Speak with an Advisor
- Chat with an Admissions Counselor

## Program Delivery

- **Delivery:**
  - Mostly online
  - In person
- **Location:**
  - Trumbull Campus

## Examples of Possible Careers\*

### Semiconductor processing technicians

- 0.7% little or no change
- 30,800 number of jobs
- \$40,500 potential earnings

### Additional Careers

- Field Service Technician - Semiconductor Equipment
- Industrial Maintenance Mechanic
- Packaging Technician
- Semiconductor Manufacturing Technician
- Senior Equipment Maintenance Technician - Semiconductors

\* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at

which half of the workers in the occupation earned more than that amount and half earned less.

## Admission Requirements

**Certificate is pending approval from HLC. After that final approval, prospective students may apply for admission.**

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students who graduated from high school three or more years ago.

Kent State campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, and the Twinsburg Academic Center, have open enrollment admission for students who hold a high school diploma, GED or equivalent.

Some programs may require that students meet certain requirements before progressing through the program. For programs with progression requirements, the information is shown on the Coursework tab.

For more information on admissions, contact the Regional Campuses admissions offices.

## Program Requirements

Code	Title	Credit Hours
<b>Certificate Requirements</b>		
ATS 11001	INTRODUCTION TO VACUUM SYSTEMS	3
ATS 11002	OVERVIEW OF MANUFACTURING MAINTENANCE	3
EERT 11000	INTRODUCTION TO SEMICONDUCTOR AND CLEANROOM	4
EERT 12000	ELECTRIC CIRCUITS I	4
IT 11000	INTRODUCTION TO OFFICE PRODUCTIVITY APPS	3
<b>Minimum Total Credit Hours:</b>		<b>17</b>

## Graduation Requirements

Minimum Certificate GPA	Minimum Overall GPA
2.00	2.00

## Program Learning Outcomes

Graduates of this program will be able to:

1. Demonstrate the capability of working safely in a cleanroom and microelectronic manufacturing environment.
2. Articulate how a semiconductor wafer is manufactured and processed to become an integrated circuit.
3. Articulate chemistry and safety awareness in semiconductor manufacturing.
4. Read and follow standard operating procedures/checklists in paper or digital format.
5. Examine maintenance procedures.
6. Articulate basic principles and purpose of quality control and quality systems.
7. Examine the basic concepts of geometric dimensioning, tolerancing, visualization and graphics in engineering technology.
8. Explain the operational mechanisms and process use of vacuum pumps used in the semiconductor industry.

9. Demonstrate the ability to test and troubleshoot a vacuum pump system with a leak.
10. Construct, analyze and troubleshoot DC electric circuits.
11. Demonstrate working with computers in daily manufacturing process environment.
12. Demonstrate problem-solving, critical thinking and communication skills.

## Full Description

The Semiconductor Manufacturing Technician undergraduate certificate provides students with a core of hi-tech manufacturing-related courses and a focus on semiconductor fabrication, clean room, vacuum technology, manufacturing and maintenance, DC circuits and trouble shooting and fundamental use of computers in their daily work. Semiconductor manufacturing technicians help engineers to manufacture semiconductor chips in the fabrication plant, operate and maintain the vacuum pumps and systems in manufacturing facility, design and work with circuit boards in the manufacturing environment.

The certificate allows graduates to work in product evaluation and testing, using measuring and diagnostic devices to adjust, test and repair equipment.

The certificate articulates with Kent State's undergraduate certificate in Advanced Semiconductor Manufacturing Technician and the Associate degree in Electrical/Electronics Engineering Technology program.