

SEMICONDUCTOR CLEANROOM MAINTENANCE TECHNOLOGY, ONE YEAR TECHNICAL CERTIFICATE

Curriculum Code #6501

Effective May 2025

Division of Engineering, Business and Information Technologies (<http://catalog.lorainccc.edu/academic-programs/engineering-business-information-technologies/>)

The Semiconductor Cleanroom Maintenance Technology one-year technical certificate is structured to provide students with the knowledge and skills necessary to work as an entry-level cleanroom maintenance technician in a semiconductor manufacturing environment. Training and education is provided in the fundamental concepts of semiconductor manufacturing, working in a cleanroom, vacuum pump application and maintenance, and introductory skills used in electronic measurement, pneumatics & hydraulics, blueprints, wiring diagrams, OSHA safety, fitness and wellness, and the use of Microsoft Windows, Office, and Teams software. The student will learn and apply principles in actual cleanroom activities while gowned up in a bunny suit. Courses taken within this one-year certificate are stackable into degrees such as SMART Automation and Microelectronic Manufacturing.

First Year

Fall Semester		Hours
CISS 121 or TECN 111	MICROCOMPUTER APPLICATIONS I ³ or TECHNICAL PROBLEM SOLVING	3
ELCT 111	ELECTRICAL CIRCUITS I	3
MEMS 136	INTRODUCTION TO SEMICONDUCTORS AND CLEANROOM PROCESSING	4
MTHM 155	TECHNICAL MATHEMATICS I	4
TECN 115	INDUSTRIAL BLUEPRINT READING	2
Hours		16

Spring Semester

AETC 115	INDUSTRIAL ROBOTICS I	3
MEMS 146	VACUUM SYSTEMS FOR SEMICONDUCTORS ¹	3
PEFT 151	LIFETIME FITNESS	1
SAFE 146	SAFETY IN GENERAL INDUSTRY ²	3
TECN 121	FLUID POWER SYSTEMS	3
TECN 133	MECHANICAL SYSTEMS ¹	3
Hours		16
Total Hours		32

1

This course requires a prerequisite

2

Successful participants will be awarded an OSHA 30 card for general industry safety.

3

TECN 111 is required for the students who want to get degree in SMART automation or Multicraft Industrial Maintenance

Program Contact(s):

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For information about admissions, enrollment, transfer, graduation and other general questions, please contact your advising team (<https://www.lorainccc.edu/admissions-and-enrollment/advising-and-counseling/>).

More program information can be found on our website.
(<https://www.lorainccc.edu/engineering/semiconductor-cleanroom-maintenance-technician/>)

Credit for Prior Learning (PLA) options may be available for your program. For more information, please visit our website: www.lorainccc.edu/PLA (<http://www.lorainccc.edu/PLA/>)

Program Learning Outcomes

1. Understand how a silicon wafer is processed into an integrated circuit within a cleanroom environment.
2. Use hand-tools and digital conferencing/file transfer software within a cleanroom environment.
3. Demonstrate the capability to perform maintenance on common equipment used within a cleanroom to build integrated circuits; especially vacuum pump systems used with thin film deposition systems, reactive ion etching chambers, and ion implantation systems.
4. Explain fundamental maintenance and technical concepts and skills used in semiconductor manufacturing including chemistry, chemical safety, electronics, wiring diagrams, blueprints, Microsoft Windows and Office, hand-tools, pneumatics, hydraulics, reading charts in a logarithmic scale, as well as general health and wellness.