



UNLOCK YOUR POTENTIAL WITH THE OASIS FOUNDATIONS MICRO-CREDENTIAL



Microprocessors and Integrated Circuits can have billions of tiny transistors that serve as unit cells for computing or data storage. The need for manufacturing and managing this technology is only growing. Whether you're entirely new to the field of semiconductors or seeking to broaden your experience, the Ohio-Southwest Alliance on Semiconductors and Integrated Scalable Manufacturing (OASiS) is committed to providing helpful training for a technical workforce.

Want to learn more?

- Contact Marc Cahay, University of Cincinnati, at marc.cahay@uc.edu.
- Visit the [OASiS website](#).
- Registration opens August 18, 2025, on [Skills@UC](#). Search for "OASiS."

To earn the OASiS Foundations micro-credential, participants must:



Step 1: Complete the following courses and score 85%+ on associated quizzes:

- **OASiS 01:** *Introduction to Semiconductor Processing Environment - Cleanroom and Safety Protocols*
- **OASiS 02:** *Chemical Safety in Semiconductor Processing*
- **OASiS 03:** *Introduction to Integrated Circuits Fabrication Processes and Metrology*
- **OASiS 04:** *Introduction to Semiconductor Manufacturing and Equipment Safety*
- **OASiS 05:** *Professional Skills*

Step 2: Choose and complete ONE of the following options:

- **OASiS 0A:** *Cleanroom Experience* with associated quiz. Note: This will be done under supervision at approved facilities.
- **OASiS 0B:** *AV/VR Simulations for Cleanroom Experience* with multiple experiments. Note: An instructor at your institution is responsible for guiding you through this training and providing equipment.
- **OASiS 06:** *Vacuum and Gas Handling* with associated quiz.

OASIS CATALOGUE

01

Introduction to Semiconductor Processing Environment - Cleanroom and Safety Protocols (6 hrs)

- Discuss the advent of the semiconductor industry.
- Identify and perform clean room safety protocol.
- Explain basic processes and pieces of equipment you will deal with in a clean room environment.

02

Chemical Safety in Semiconductor Processing (3 hrs)

- Define what a chemical is and what types of chemicals are used in semiconductor fabrication.
- Explain the role of chemicals in semiconductor fabrication.
- Define chemical hazards.
- Describe the considerations and general practices for properly storing chemicals and handling of chemical waste.

03

Introduction to Integrated Circuits Fabrication Processes and Metrology (3 hrs)

- Explain critical manufacturing steps involved in IC fabrication.
- Identify tools used in IC manufacturing processes.
- Explain the relationship between circuit design, mask design, and process design.
- Define ion implant, chemical mechanical polish, and inline process control.
- Define gate dielectric.

04

Introduction to Semiconductor Manufacturing and Equipment Safety (3.5 hrs)

- Explain the basics of semiconductor manufacturing processes.
- Describe equipment and tools in the manufacturing industry.
- Identify the role of a semiconductor technician in the manufacturing plant.
- Apply the safety protocols in the semiconductor manufacturing plant.

05

Professional Skills (4 hrs)

- Describe employability skills necessary for professional careers and develop strategies to manage career development through effective networking and career exploration skills such as resume and interview skills.
- Identify their time management practices and learn effective time-management methods to organize their time for personal success.
- Detail your problem-solving skills and practice critical thinking for problem-solving and decision-making.
- Communicate effectively by learning strategies for critical comprehension, email etiquette and writing techniques, and presentation skills.

0A

Cleanroom Experience (3.5 hrs)

- Identify and explain cleanroom safety.
- Describe processing schedule.
- Conduct wafer handling, wafer cleaning, oxidation, photolithography, metal deposition, metal and oxide etching, optical and electrical measurements.

0B

AR/VR Simulation for Cleanroom Experience (4.5 hrs)

- Use virtual reality equipment viz head-mounted display and hand controllers.
- Perform tasks in VR corresponding to semiconductor chip manufacturing.
- Perform basic operations involved in lithography, rapid thermal annealing, reactive ion etching, and semiconductor chip resistivity measurement experiments.
- Interact with virtual panels via widgets.
- Perform grab, release, and teleportation operations involved in VR training basics.

06

Vacuum and Gas Handling (3 hrs)

- Define the concept of compressed gases and vacuum.
- Explain the role of vacuum in semiconductor manufacturing.
- Identify hazards associated with vacuum systems.
- Detail the role of compressed gases in semiconductor manufacturing.
- Describe how to work safely with compressed gases.

In addition to the OASiS Foundations micro-credential, you can continue your education and preparedness for the field with additional OASiS offerings. Check the Skills@UC site for more, including:

07 - Network Analysis Fundamentals (10 hrs)

08 - Electronics Fundamentals Assessment (2 hrs)

09 - Semiconductor Physics and Devices Fundamentals Assessment (2 hrs)

10 - Introduction to Industrial Process and Automation (9 hrs)

11 - Quality Control in Semiconductor Chip Manufacturing (6 hrs)

12 - Environmental Control in Semiconductor Industry (9 hrs)