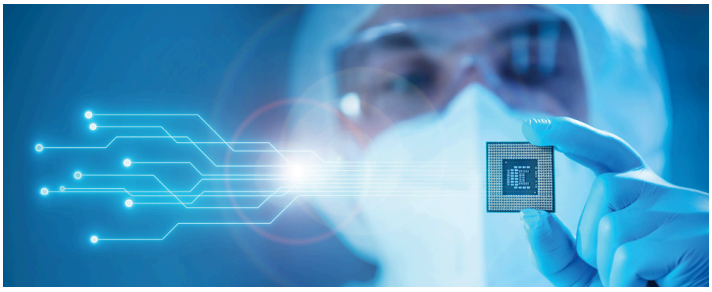
SEMICONDUCTOR FUNDAMENTALS, CERTIFICATE OF PROFICIENCY



Ohio is becoming one of the hubs for semiconductor manufacturing in the United States. As this industry is posed for growth within the state, a need for skilled workers to work in this arena is becoming prevalent. The Semiconductor Fundamentals Certificate is geared towards students interested in getting started in the industry. Students are introduced to manufacturing processes, safety, circuits, technical drawings, fluid power, vacuum systems, and programmable logic controls (PLC). Use of state-of-the-art cleanroom spaces allow students to experience real world lab spaces.

Program contact: Learn more

This certificate will be automatically awarded when the certificate requirements are completed. If you do not want to receive the certificate, please notify the Office of the Registrar at RegistrarOffice@tri-c.edu.

Learn more about how certificate credits apply to the related degree.

Related Degrees and Certificates

- Smart Manufacturing - Mechatronics, Associate of Applied Science
- Bachelor of Applied Science in Integrated Digital Manufacturing Engineering Technology

Program Admissions Requirements

- High School Diploma/GED
- ENG-0995 Applied College Literacies or higher, or appropriate score on English Placement Test recommended.
- MATH-0955 Beginning Algebra or higher, or qualified Math Placement

Program Learning Outcomes

This program is designed to prepare students to demonstrate the following learning outcomes:

1. Communicate effectively and efficiently with diverse individuals and teams, all levels of employees, customers, and suppliers by means of verbal, written (memos, reports, emails, etc.), graphics, symbols, and effective listening skills and using appropriate technology.
2. Complete tasks and projects on schedule through the effective use of time management, appropriate math skills, and teamwork that fosters inclusion, synergized efforts in problem identification, and troubleshooting for successful resolution of problems towards the achievement of set goals and objectives.
3. Incorporate safety awareness, principles and practices in every aspect of work and as a way of life, including machine safety, environmental safety, chemical safety, and personal/ employee protection.
4. Discuss expected knowledge of silicon wafer processing.
5. Summarize expected competencies in chemical principles, safety, electronics, schematics, software tools, hydraulics, pneumatics, and PLC.
6. Select appropriate tools to perform basic maintenance on a vacuum pump system while gowned up in a cleanroom environment.

Suggested Semester Sequence

First Semester		**Credit Hours**
MET-1041	Foundations of Manufacturing	3
MET-1060	Semiconductor Manufacturing Processes and Cleanrooms	3
MET-1120	Computer Applications and Programming	2
EET-1220	Circuits and Electronics for Automation	3
ISET-1301	Mechanical/Electrical Print Reading	3
CNST-1060	General Industry Safety Awareness	1
	Credit Hours	**15**
Second Semester		
ISET-1320	Fundamentals of Fluid Power	2
MET-1070	Vacuum Systems Technology	3
MET-1640	Robotics and Programmable Logic Controllers in Process Automation	5
ISET-2200	Industrial Motor Controls	3
ISET-1310	Mechanical Power Transmission	2
	Credit Hours	**15**
	Total Credit Hours	**30**

MATH-1140, MATH-1141, MATH-1200, MATH-1270, and MATH-1280 can no longer count towards fulfilling the college-level mathematics requirement. These courses were re-classified as developmental mathematics by the state of Ohio in 2016. Tri-C established a 5-year transitioning window for students who had completed these courses prior to 2016 to apply them towards meeting graduation requirements, which expired in Summer 2021. It is highly recommended to see a counselor to determine the appropriate math required for your current major.