



OHIO SEMICONDUCTOR
COLLABORATION NETWORK

New Curriculum Developed Quickly to Meet Semiconductor Industry Demand

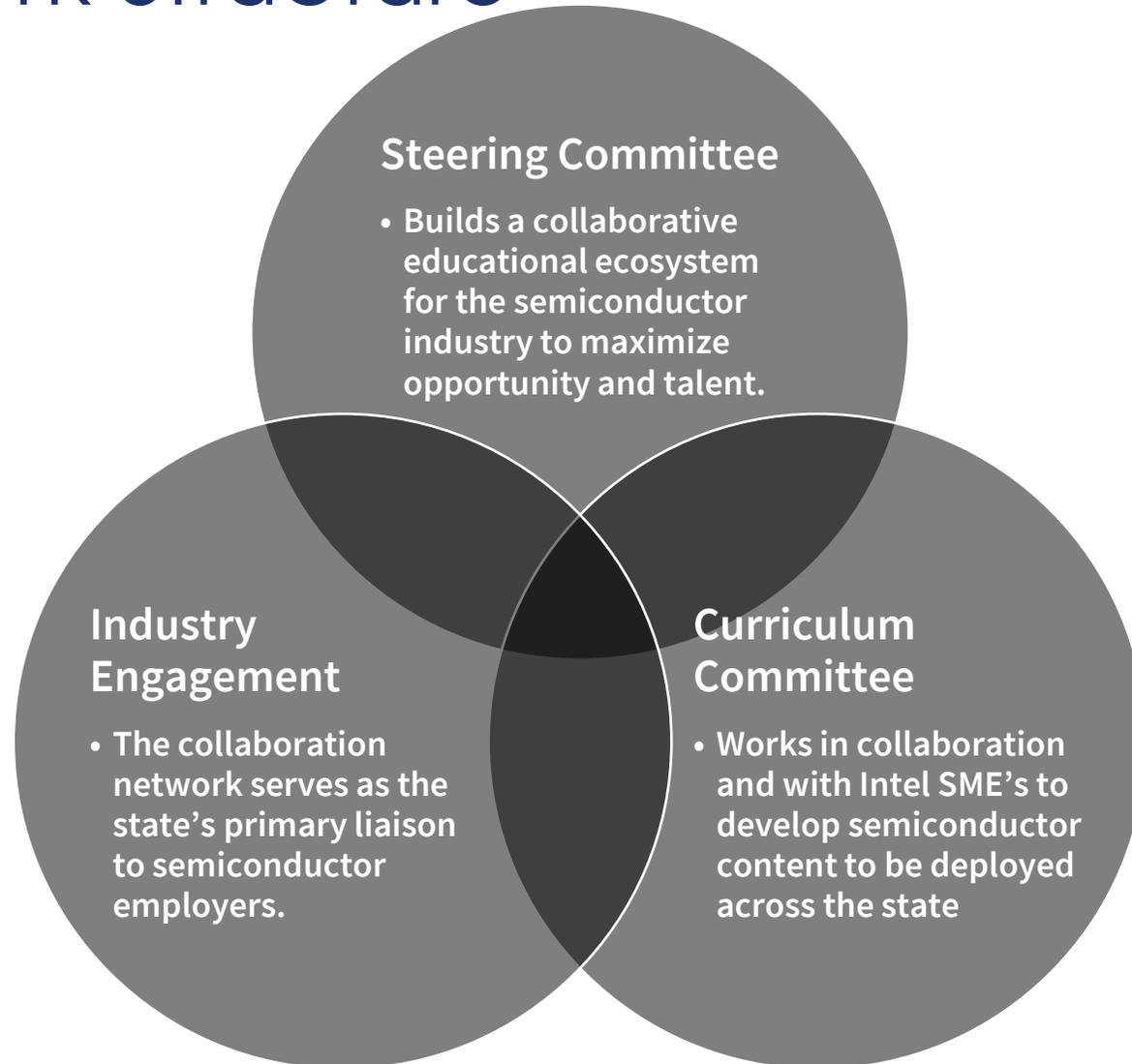


Ohio Semiconductor Collaboration Network

Statewide collaborative focused on building and sustaining a strong semiconductor and advanced manufacturing technician pipeline by aligning credentialing and program outcomes, scaling best practice and leveraging p



Ohio Semiconductor Collaboration Network Structure



In Partnership:

**Ohio Association of Community Colleges
and Member Colleges**

Ohio Department of Higher Education

Intel

- National Curriculum Sources
- Ohio Community College Faculty Panel
- Content Expertise
- Transfer Pathways from Career Tech, Ohio Technical Centers, Community Colleges and Universities
- Panel Developed Guaranteed College Credit Transfer for Seamless Continuation to an Associate's Degree and Beyond:
 - Utilizing Ohio's Transfer Assurance Guides and Career Technical Assurance Guides Approval Process





Two-Semester Certificate Grows the Talent Pipeline: What Students Will Gain and Learn

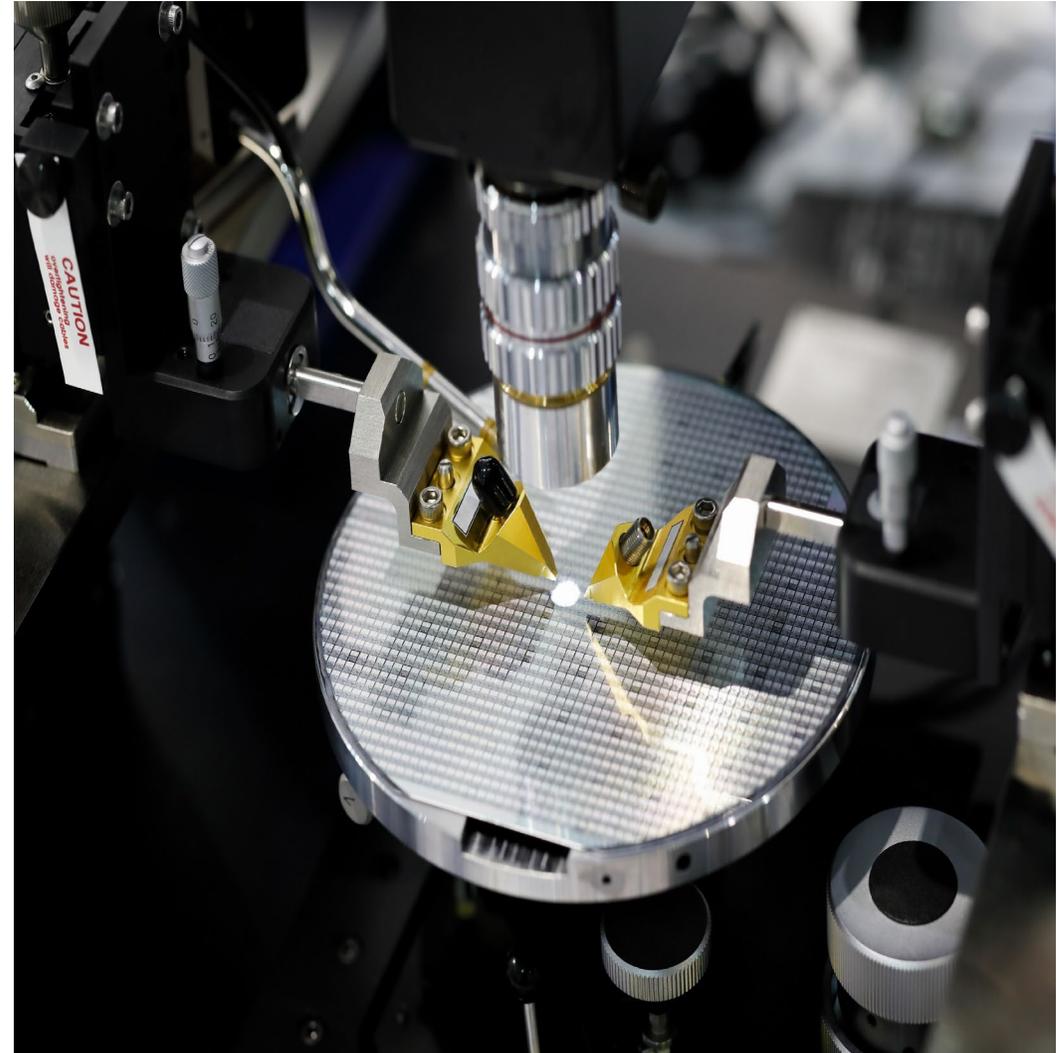
- How to get trained for Operator, Entry-Level Technician roles
 - Industry standard operating procedures, and working from digital checklists
 - Working in a cleanroom and wearing a cleanroom suit (bunny-suit)
 - Learning chemical and cleanroom safety procedures
 - Embedding contextualized math & career exploration
 - All designed with structured cohort models and wraparound student supports to maximize completion
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Manufacturing Foundations

Manufacturing Foundations – What Students Will Learn

- Standard operating procedures and checklists in paper or digital format and document work using industry records and travelers.
- Basic measurement and precision tools and techniques.
- Maintenance schemas: predictive, time-based, preventative, corrective.
- Visualization and graphics as a major component in engineering technology.
- Quality Control and Quality Systems and examine the basic concepts for Statistical Process Control (SPC).
- Fundamentals of Lean Manufacturing

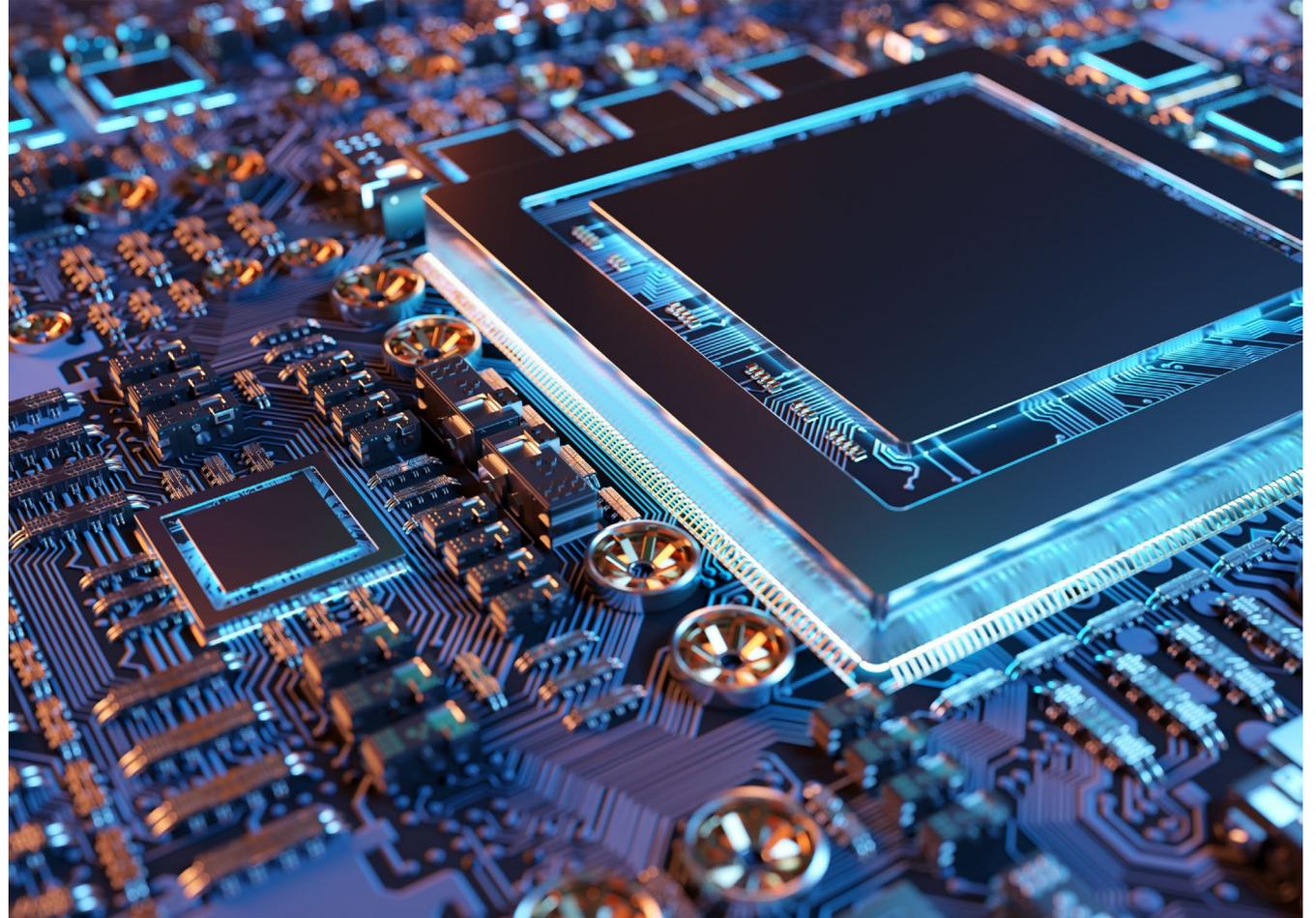
**Format: 16 weeks and 8 weeks
Online/Lecture and Limited Labs**



Semiconductor 101

Semiconductor 101 – What Students Will Learn

- Explore career opportunities in the semiconductor industry and work safely in a cleanroom environment—donning, wearing, and doffing a bunny suit.
- Work efficiently and safely in a microelectronic manufacturing environment to ensure on-time delivery of products and completion of tasks in a digital checklist or following a standard operating procedure.
- Articulate how a semiconductor wafer is manufactured and processed to become an integrated circuit.
- Articulate chemistry & safety awareness in semiconductor manufacturing.



**Format: 16 weeks and 8 weeks
Online/Lecture**

Vacuum Systems

Vacuum Systems – What Students Will Learn

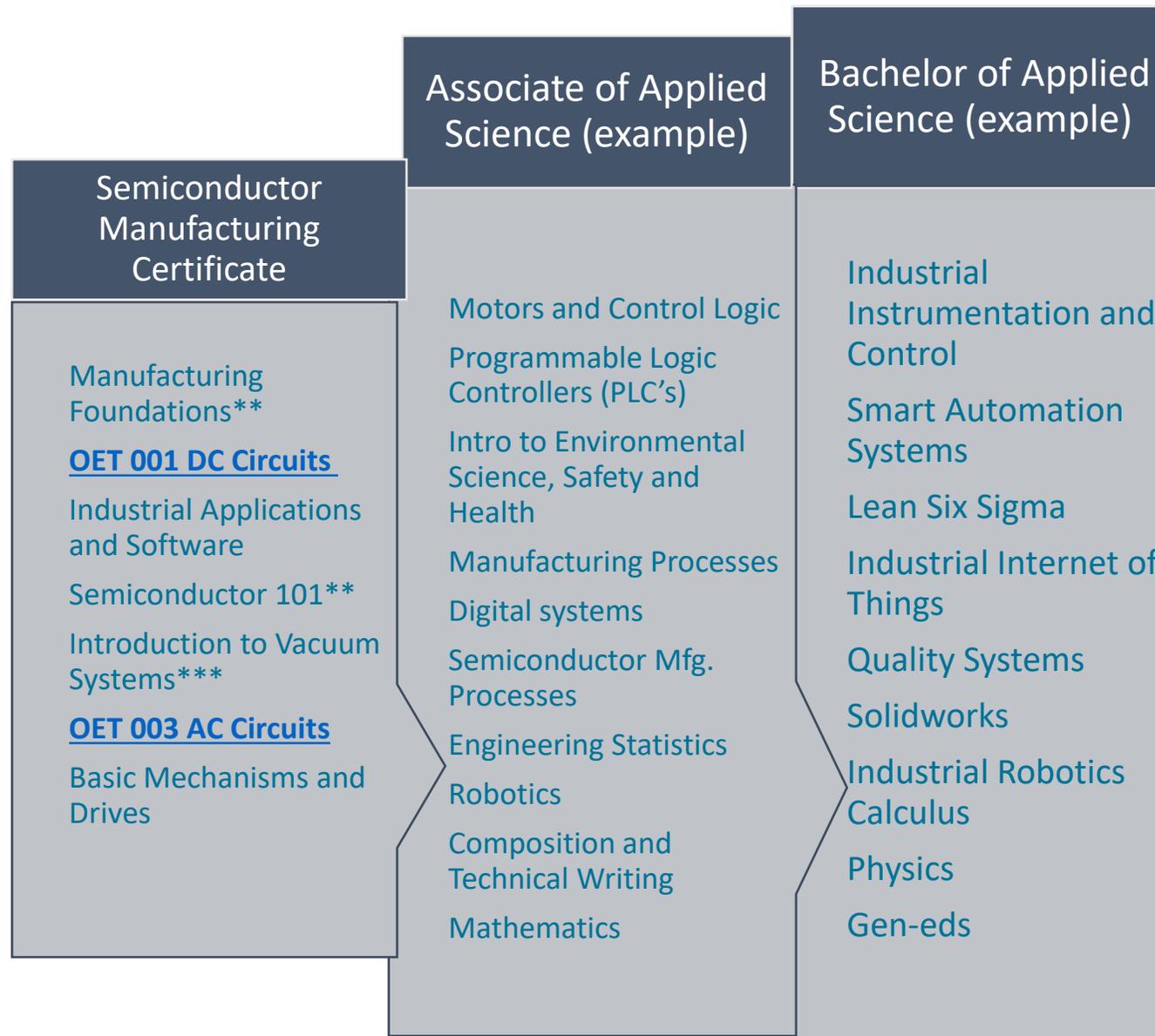
- Operational mechanisms and process use of vacuum pumps used in the semiconductor industry.
- Operational methodology and process use of equipment that requires vacuum pumps used in the semiconductor industry.
- Safety awareness and the ability to use hand tools and technology to perform preventative maintenance of vacuum systems.
- Perform leak checks when performing maintenance on vacuum pump systems.



**Format: 16 weeks and 8 weeks
Online/Lecture/Extensive Technical Labs**

Semiconductor Manufacturing Certificate Pathway

Sample Advanced Manufacturing Pathway



** New TAG Course
 *** New CTAG Course



Advanced Manufacturing Options

Foundational courses will guide additional tech industry options such as electric vehicle technologies

Nimble Curriculum Design Model

Empaneling existing faculty and industry subject matter experts and building strong partnerships across educational sectors is a key feature to rapid curriculum development.



Curriculum Adoption Progress

College Plans to Launch Semiconductor Courses

- 20 of 23 colleges reporting plans to adopt curriculum
- 4 of 23 colleges reporting the new semiconductor course(s) underway for Fall 2023 term
- 10 or possibly 11 of 23 colleges reporting offering course(s) in 2024

Curriculum Development Plans: Grant Year 2



Improving K-12 Involvement

- Improving the Hybrid Course Design to allow content instruction to occur remotely
- High school faculty development for laboratory instruction
- Laboratory sharing strategy development



Further Curriculum Development

- Common curriculum for certificates and AAS degree development
- Bachelor degree pathways development
- Assessment of existing courses and improvement planning
- Faculty development



Developing the Ecosystem

- Expanding on the universal advanced manufacturing concept so that electric vehicle manufacturing and other parallel tech sector needs are met.

Professional Development



Ohio Semiconductor Collaboration Network Community of Practice: Upcoming Professional Development

- Continued partnership between OACC's Success Center the National Alliance for Partnerships in Equity to support the statewide effort to build the pipeline and increase completions in advanced manufacturing.
 - The Program Improvement Process for Equity (PIPE) engages cross-functional teams in long-term and sustainable improvement processes to increase student access and success in STEM fields.
 - The Success Center will provide **\$5,000 stipends** to each participating college to support travel costs, work on campus, and faculty time with spots for college teams filled first come, first serve (deadline August 4).
 - Teams of 5-7 include representatives from academic administration, faculty, student services, and institutional research.
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OSCN Professional Development Timeline:

Program Improvement Process for Equity (PIPE)

- August 2023: Organize - 2-Hour Virtual Session
- September 14, 2023: Explore - Half-Day In-Person Training at Columbus State Community College
- September 27, 2023: Discover - Full-Day Virtual Training
- Fall 2023 Technical Assistance calls with NAPE
- January/February 2024: Select & Act - Full-Day Virtual Training
- May 14, 2024: Showcase - Full-Day In-Person Event (Location TBD)

Faculty Professional Development Opportunities



- Full credential and micro courses offered by ACUE including Effective Online Teaching Practices and Promoting Active Learning with a Concentration in Career Guidance and Readiness
 - Curriculum professional development and training for courses including Intro to Manufacturing and Semiconductor 101
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Other Year 2 Grant Activity

Upcoming OSCN Activity for Year 2

Round 2 of Curriculum Development Support

- \$15,000 available to adopt curricula related to the Intel and Advanced Manufacturing competencies in the 1-year certificate and associate degree programs
- An application process will be available on Monday, September 18 and due on Monday, October 2

Lab Equipment to Support the Vacuum Systems Course

- Funding secured through the Super RAPIDS Program, urgent workforce needs pot of money
- OACC will release an RFI to the colleges by the end of next week to gather more information

Grant Funded OACC/OSCN Scholarships for Students Entering Engineering Tech Pathways

- OACC will release an RFP to the colleges in October and will host an information session

The OSCN Steering Committee Will Finalize a Strategic Plan

- The strategic plan will serve as our foundation and guide as we apply for additional state, federal and other funding opportunities to sustain the network over time

Grant Success Criteria

How Will We Measure Success?



Key Topic 1: Curriculum Development Grant Success Criteria

- 1,000 students enroll in and complete Intel-relevant engineering technology programs.
 - Student specific populations increase by 40% at the end of the 3-year grant period, or:
 - 168 underrepresented minorities
 - 126 women
 - 48 veterans

Key Topic 2: Professional Development Grant Success Criteria

- 80% of Ohio's 23 community colleges have teams of faculty, staff and deans participate in equity professional development offerings

Key Topic 5: Experiential Learning Grant Success Criteria

- All Colleges enhance experiential learning with the infusion of project-based, hands-on and experiential learning into the curriculum

Questions?

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