Paid Intel Summer Internship in Semiconductors and Microelectronics

DATE

June 2-July 25, 2025

LOCATIONS

- Central State University, Wilberforce, OH
- Wright State University, Dayton, OH
- University of Michigan, Ann Arbor, MI

SCHOLARSHIPS

- $5,000 for stipend and food allowance
- Paid housing is provided at the internship campuses

ONLINE APPLICATION

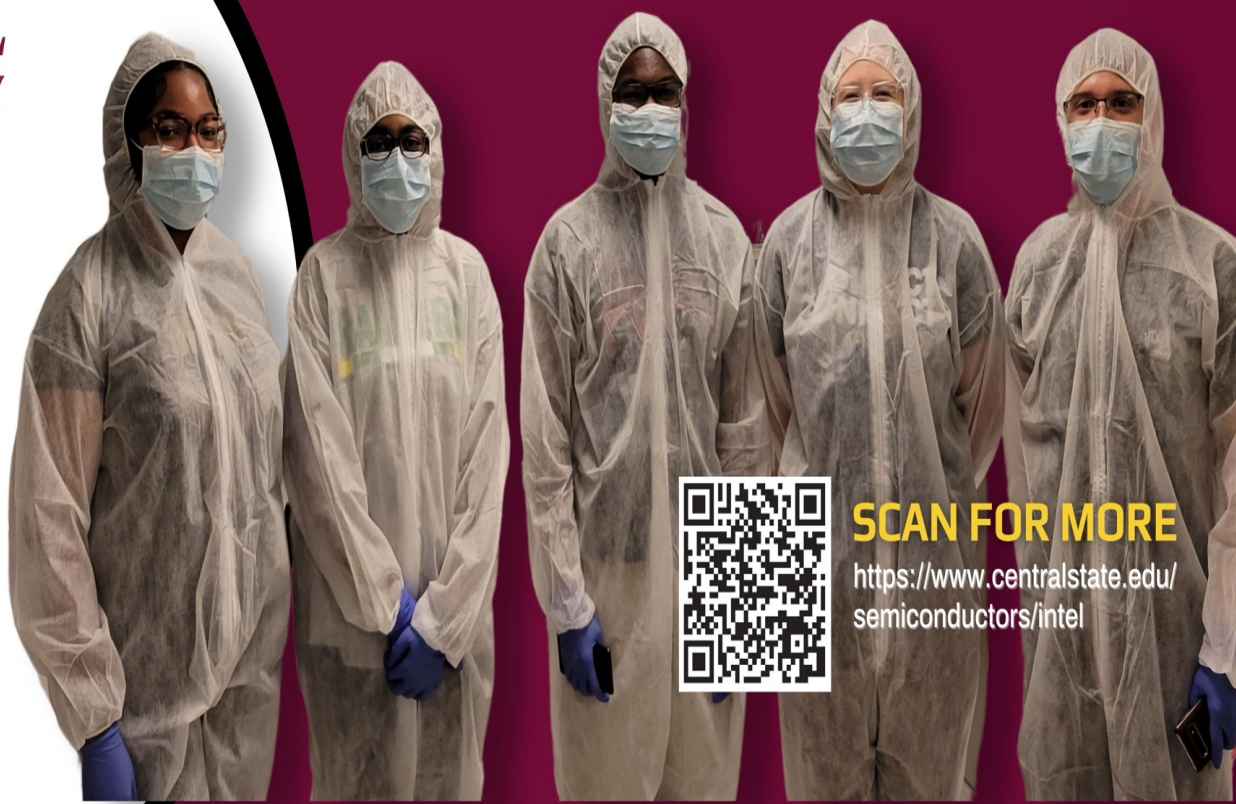
Deadline: March 31, 2025

Application form:
https://forms.office.com/r/MBcaBMznsD

CENTRAL STATE UNIVERSITY

intel

WRIGHT STATE UNIVERSITY



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https://www.centralstate.edu/semiconductors/intel

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Program Overview

This booklet provides an overview of the 2025 Summer Internship Program in Semiconductors and Microelectronics at Central State University, strategically designed to advance national technological goals and regional economic development. The 2025 program is an intensive eight-week experience scheduled from June 2 to July 25, 2025. Central State University (CSU) serves as the central coordinator through its Semiconductor Education and Research Program (SERP: https://www.centralstate.edu/semiconductors). Intel's sponsorship highlights its commitment to building a robust talent pipeline essential for the upcoming Ohio facilities. The initiative addresses the critical shortage of skilled professionals in the semiconductor industry, directly supporting Intel's substantial $28 billion investment in new Ohio production facilities set to begin operations in 2030.

The program invites undergraduate and high school students, strongly emphasizing STEM-focused participants, particularly those interested in microelectronics. No prior microelectronics experience is required; basic high school mathematics proficiency suffices. Participants engage in daily lectures complemented by extensive hands-on laboratory experience. Interns receive a generous $5,000 scholarship covering a stipend, food allowance, and paid accommodation at their respective internship campuses.

A significant development for the 2025 iteration is the expansion of internship sites to include three distinguished academic institutions: Wright State University (Dayton, OH), University of Michigan (Ann Arbor, MI), and Prairie View A&M University (Prairie View, TX). This growth from previous single-site (in 2023) or dual-site (in 2024) arrangements reflects an intentional effort to increase program capacity and geographic reach, thereby accommodating more interns and enhancing accessibility to a broader, more diverse student population. CSU's Summer Internship Program was launched in 2023 with seed funding from Intel through SERP-CSU, established in 2022, with the goal of sustaining and expanding the program through additional funding sources. Building on this foundation, CSU now leads the NSF-funded Partnership for Advancing Research Capacity in Semiconductors at Historically Black Colleges and Universities (PARCS-HBCU) and serves as a collaborating partner in the Advancing Semiconductor Education through Expansion and Diversification (ASEED) project. These initiatives have enabled CSU to expand internship opportunities and provide increased scholarship support for a larger cohort of students in Summer 2025.

Program Objectives and Target Audience

The primary objectives of the Summer Internship Program are multifaceted, focusing on both immediate skill development and long-term career preparation within the semiconductor industry. The core objective is to provide intensive, practical, and hands-on

training in critical areas of electronic hardware design, fabrication, and security. This focus on practical skills ensures immediate applicability in industrial settings. The program is meticulously designed to equip students with the necessary skills and knowledge for pursuing future career opportunities at leading companies within the semiconductor industry, with a particular emphasis on Intel's operations in Ohio. A key strategic objective is to directly train students for jobs in Intel's upcoming Ohio chip factory, which is projected to become operational in 2030, ensuring a ready supply of qualified talent for Intel's significant investment.

The program's target audience reflects a strong commitment to broad accessibility. It is inclusively open to all undergraduate and high school students, aiming to cast a wide net for potential talent. This aligns with Central State University's mission to prepare a "diverse and better-equipped technical workforce" 1 and Intel's broader commitment to diversity and inclusion. Crucially, the program explicitly states that no prior experience in microelectronics is necessary for eligibility, significantly lowering the barrier to entry for students who may not have had early exposure to the field. A fundamental understanding of high school mathematics is deemed sufficient for participation. This further enhances accessibility, allowing students with foundational quantitative skills to enter a highly specialized field.

The program's design, which requires only basic high school math and no prior microelectronics experience, directly confronts a common challenge in STEM education: the perceived complexity or lack of early exposure to specialized fields. By providing a structured, hands-on learning environment, it aims to build foundational skills from the ground up. This approach effectively on-ramps students who might not have pursued microelectronics through conventional academic routes, directly addressing the "shortage of skilled workforce". This inclusive and foundational training model is essential for sustainable workforce development in a rapidly evolving industry, shifting the focus from simply selecting pre-qualified candidates to actively cultivating new talent, demonstrating a commitment to long-term human capital development that benefits both industry and the broader economy.

Internship Curriculum

The Summer Internship Program is structured as an intensive eight-week, mentor-guided training experience that effectively blends theory and practice. Participants attend daily morning lectures designed to establish essential theoretical foundations in microelectronics. These lectures are complemented by practical, hands-on laboratory sessions each afternoon, enabling interns to directly apply concepts learned and build tangible skills. The program's consistent, five-day-a-week structure facilitates deep immersion and continuous learning. This integrated theoretical and practical approach directly addresses industry demand for a skilled technical workforce, preparing interns with job-ready expertise. By aligning closely with industry requirements, particularly those of Intel, interns quickly

acquire competencies that significantly streamline their transition into manufacturing and research roles, making them immediately valuable to future employers.

Topics Outline: The curriculum is structured around following five distinct core topics, each focusing on a critical aspect of microelectronics.

1.) Introduction to Microelectronics Design

- Real-world analog signals and communications,
- Strengths and weaknesses of analog communications,
- Importance of Digital Signals and Microelectronics,
- Bridge components for analog and digital communications,
- Microelectronic device architecture and operating system,
- Digital number systems and conversions,
- Basic digital implementation technique, Basic Boolean algebra theory and logic gates, Basic digital arithmetic operations,
- Microelectronics vulnerability, security and counterfeit.

2.) Introduction to Microelectronics Security

- Basic microelectronic circuit design, performance evaluation and measurement (delay, power, area, etc.),
- Use of industry-standard design tools to create micro-chip level layout for fabrication including design checks and performance evaluations,
- Micro-chip fabrication process and clean room operation,
- Microelectronic supply chain system & Security risks:
  - Microelectronics vulnerability – Potential Security risk (Counterfeit microelectronics, Intellectual Property protection, data integrity, etc.),
  - Potential cyberattacks in each stage of the design/fabrication process (Hardware Trojans and side-channel attacks).

3.) Introduction to Printed Circuit Boards Fabrication and Design

- Introduction to PCB fabrication,
- Introduction and demonstration of a basic microelectronic system on a printed circuit board,
- Difference between Printed Wiring Board (PWB) and PCB with examples,
- Introduction to chemicals and other materials used in building PCB,
- PCB Types:
  - Single Sided (Single Layer) & Multi-Layer(Double Layer)
  - Importance of PCB in embedded systems in Industries like Intel and Air Force Research Lab,

  - PCB Design process using CAD tool (KiCad, EDAA Cross Platform, and other Open-Source Electronics Design Automation Suite like Proteus and Altium).

4.) Introduction to Microelectronics Fabrication

This course will provide students with the basic physics and chemistry associated with microfabrication tools and techniques, and the fabrication of semiconductor devices. The following topics are covered in this course:

- Basic metallization, including thermal evaporation and plating,
- Wet-chemical processing, including metal lift-off, etch-back, and anisotropic deep etching,
- Annealing, wire bonding, and other contact technologies.
- Cleaving, dicing, and related chip generation,
- Lapping and polishing down to 100 microns or less (depending on the material) using diamond-grit and other slurries,
- Reactive-ion etching, including plasma ashing capability
- Sub-micron analysis and imaging capabilities using a Dektak profilometer, Rudolph ellipsometer, Infinity metallurgical microscope, or Phenom scanning electron microscope.

Microfabrication cleanroom training sessions will take place in the Microfabrication Science Cleanroom Facility, located within the Neuroscience Engineering Collaboration (NEC) Building. This facility features around 1100 square feet of space devoted to fabricating, packaging, and integrating semiconductor devices. The NEC Building houses a Class 1,000 cleanroom (835 SF) suitable for generic chemical processing and thin-film creation. It also accommodates a Class 100 cleanroom (260 SF) for basic photolithography down to approximately a 1.0-micron scale. This includes equipment for spinning, UV patterning (both flood and contact printing), and development.

5.) Introduction to Additive Microfabrication of Electronics

- Introduction to additive manufacturing (AM) processes
  - Discuss all AM processes,
- Direct-write technologies for microfabrication
  - Nozzle dispensing: material extrusion,
  - Nozzle dispensing: Inkjet printing,
  - Nozzle dispensing: Aerosoljet printing,
- Additive manufacturing of electronics
  - Combination of 3D printing and direct write technologies to create structural electronics involving microelectronics devices, interconnects, finish electronic products,

– For example, Additive Manufacturing can offer many advantages to companies in the electronics industry, including faster time to market, the manufacturing of full prototypes of pilot and small production series parts, and quick implementation of customer-specific solutions.

Internship Schedule

Throughout the 8-week internship, participants will engage in a structured daily schedule, consisting of instructional lectures each morning and hands-on laboratory sessions in the afternoons, Monday through Friday. This format offers interns an in-depth exploration of microelectronics, covering both theoretical concepts and practical applications, thereby equipping them with a well-rounded understanding of the field.

Summer 2025 Internship Program: Schedule and Topic Overview

June 2 9:00–13:00	**Kickoff Event**	
June 3-13	**Introduction to Microelectronics Design**	
10:00–15:00	**Dr. Saiyu Ren** Wright State University	saiyu.ren@wright.edu
June 16-27	**Introduction to Microelectronics Security**	
10:00–15:00	**Dr. Saiyu Ren** Wright State University	saiyu.ren@wright.edu
June 30 - July 11	**Introduction to Printed Circuit Boards Fabrication and Design**	
10:00–15:00	**Kelley Billy & Matthew Kijowski** Wright State University	billy.kelley@wright.edu & matthew.kijowski@wright.edu
July 14-18	**Introduction to Microelectronics Fabrication**	
TBD	**Dr. Daniel Sim** Wright-Patterson AFB & Wright State University	daniel.sim@wright.edu
July 21-25	**Introduction to Additive Microfabrication of Electronics**	
10:00–15:00	**Dr. Ahsan Mian** Wright State University	ahsan.mian@wright.edu
July 25 15:00–16:00	**Completion & Certification Ceremony**	

Scholarship Benefits and Participant Support

The 2025 Summer Internship Program offers comprehensive financial and logistical support to its participants. Each intern will receive a substantial scholarship of $5,000. This scholarship is specifically allocated to cover both a personal stipend and a food allowance for the duration of the eight-week program. This significant financial incentive aims to alleviate the economic burden on students, making the program accessible to a wider demographic. In addition to financial aid, participants will receive paid accommodation at the respective internship campuses. For previous years (2023, 2024), this specifically included paid accommodation at Wright State University and SUNY-Binghamton guest houses. For the 2025 program, with its expanded multi-site structure, paid accommodation will be provided at the specific campus where the intern is placed (Wright State University, University of Michigan, or Prairie View A&M University). The provision of a $5,000 stipend/food allowance and fully paid accommodation is a critical strategic decision. This comprehensive support directly addresses potential financial barriers that could prevent "academically talented, low-income students" from participating. Furthermore, in the highly competitive landscape for STEM internships, offering a substantial financial stipend and covering all living expenses (accommodation and food) makes this program exceptionally attractive. The generous benefits package not only supports individual students but also significantly elevates the program's prestige and competitiveness, ensuring that the program can attract and select the most promising talent from Ohio and across the nation, further solidifying its role as a key player in semiconductor workforce development and contributing to the overall quality of the talent pipeline for Intel and the broader industry.

Intern Selection & Participant List

The program is open to all undergraduate students currently enrolled in a degree program, as well as high school students. This broad eligibility ensures a wide talent pool, including those considering future STEM careers. Crucially, no prior experience in microelectronics is necessary, making the program accessible to newcomers to the field. A basic understanding of high school mathematics is the only required foundational knowledge. All required application materials must be submitted electronically through the CSU's application portal https://forms.office.com/r/MBcaBMznsD. The deadline for submitting all application materials for the 2025 program is March 31, 2025. Furthermore, the explicit inclusion of high school students in the eligibility criteria demonstrates a proactive strategy to engage and inspire talent at an earlier stage in their academic journey. By reaching out to high school students, the program is not just recruiting for immediate needs but actively cultivating a long-term pipeline of talent interested in semiconductors. This year, the program received 309 applications, from which 46 interns were selected, representing 14 higher education institutions and 6 high schools. Out of the 46 interns, 38 will receive training at the Wright State University campus, while 4 interns will train at the University of Michigan and another 4 at Prairie View A&M University.

	Applications	Selected Applicants
#	309	46 (15%)
School Distribution		
Central State University	84 (27%)	19 (41 %)
High School	24 (8 %)	6 (13 %)
Wright State University	34 (11 %)	4 (8.7 %)
The Ohio State University	33 (11 %)	3 (6.5 %)
Fayetteville State University	2 (0.6 %)	2 (4.3 %)
Hampton University	7 (2.3 %)	2 (4.3 %)
Sinclair Community College	3 (1 %)	2 (4.3 %)
Case Western Reserve University	1 (0.3 %)	1 (2.2 %)
Cedarville University	15 (5 %)	1 (2.2 %)
Stark State College	2 (0.6 %)	1 (2.2 %)
University of Cincinnati	19 (6 %)	1 (2.2 %)
University of Dayton	4 (1.3 %)	1 (2.2 %)
University of North Carolina at Charlotte	1 (0.3 %)	1 (2.2 %)
Prairie View A&M University	1 (0.3 %)	1 (2.2 %)
Xavier University	1 (0.3 %)	1 (2.2 %)
Others	78 (25 %)	0 (0 %)
Major Distribution for Undergraduate Students		
Computer Science & Engineering & Cybersecurity		20 (50 %)
Chemistry & Chemical Engineering		5 (12.5 %)
Electrical Engineering		4 (10 %)
Biology & Biochemistry		3 (7.5 %)
Industrial Technology		2 (5 %)
Environmental Engineering		2 (5 %)
Manufacturing Engineering		2 (5 %)
Sustainable Agriculture		1 (2.5 %)
Physics		1 (2.5 %)

Name	**Affiliation**	**Email Address**
List of Group 1 (38 Interns) Receiving Training at Wright State Univ.		
Serene Abdallah	High School	2122102@intellicoracademy.org
Ashenii Adu	Central State Univ.	aadu.csu@centralstate.edu
Nourallah Alatfy	Sinclair Comm. College	nourallah.alatfy@sinclair.edu
Abdallah Alatfy	High School	Abdallah.alatfy@icloud.com
Aba Anokye	Hampton Univ.	aba.anokye@my.hamptonu.edu
Sopuluchi Anosike	The Ohio State Univ.	Anosike.8@buckeyemail.osu.edu
Ransford Antwi	Hampton Univ.	ransford.antwi@my.hamptonu.edu
Adam Boussaha	Sinclair Comm. College	adam.boussaha2002@gmail.com
Caleb Bannister	The Ohio State Univ.	bannister.38@buckeyemail.osu.edu

Rosaria Bennett	Central State Univ.	rbennett.csu@centralstate.edu
Wisdom Chima	The Ohio State Univ.	chima.14@osu.edu
Emily Creed	Xavier Univ.	creede@xavier.edu
Jailla Davis	Central State Univ.	jdavis15.csu@centralstate.edu
MG Davis	Case Western Res. Univ.	med151@case.edu
Blessing Dike	Prairie View A&M Univ.	bdike@pvamu.edu
Nathaniel Ezzie	Stark State College	nezzie0431@starkstate.net
Abijah Gordon	Fayetteville State Univ.	agordon7@broncos.uncfsu.edu
Zicheng Guo	High School	pokest45.pz@gmail.com
Abigail Haut	Cedarville Univ.	ahaut@cedarville.edu
Safa Islam	Wright State Univ.	islam.196@wright.edu
Shellisa Johnson	Central State Univ.	sjohnson11.csu@centralstate.edu
Aigbokhai Kadiri	Central State Univ.	Akadiri.csu@centralstate.edu
Plamedie Kanjinga-Kabole	Central State Univ.	pkanjingakabol.CSU@centralstate.edu
Ariana Kinney	Wright State Univ.	kinney.58@wright.edu
Shirleyah McIntosh	Central State Univ.	Smcintosh.csu@centralstate.edu
Brandon McDougal	Central State Univ.	bmcdougal.csu@centralstate.edu
Grace Miller	Wright State Univ.	miller.1830@wright.edu
Mariam Muhammad	UNC Charlotte	mmuhamm7@charlotte.edu
Thomas Murray	Fayetteville State Univ.	Tmurray12@broncos.uncfsu.edu
Thac Duy Nguyen	Univ. of Cincinnati	nguye8tu@mail.uc.edu
Jenna Zhang	High School	jennazhang69@gmail.com
Nicholas Pontious	Wright State Univ.	pontious.4@wright.edu
Aiden Swayne	High School	swayne.33@buckeyemail.osu.edu
Animesh Thakre	Univ. of Dayton	thakrea3@udayton.edu
Ramya Jyothi Vadde	Central State Univ.	rvadde.csu@centralstate.edu
Jasmine Williams	Central State Univ.	jwilliams36.csu@centralstate.edu
Quentin Williams	Central State Univ.	Qwilliams1.csu@centralstate.edu
Mahmoud Zeidan	High School	Mohammadzeidan242@gmail.com
List of Group 2 (4 Interns) Receiving Training at University of Michigan		
Kayvon Adderley	Central State Univ.	kadderley.CSU@centralstate.edu
Avnaly Alceres	Central State Univ.	aalceres.csu@centralstate.edu
Davian Cartwright	Central State Univ.	dcartwright.csu@centralstate.edu
Maki Moxey	Central State Univ.	mmoxey.csu@centralstate.edu
List of Group 3 (4 Interns) Receiving Training at Prairie View A&M University		
Nishe' Davis	Central State Univ.	ndavis5.csu@centralstate.edu
Samuel Miller	Central State Univ.	smiller4.csu@centralstate.edu
Camron Nesbitt	Central State Univ.	cnesbitt.csu@centralstate.edu
Raniah Saunders	Central State Univ.	rsaunders1.csu@centralstate.edu

Organization Teams & Mentors

The 2025 summer internship is organized through a collaborative effort involving teams from Central State University (OH), Wright State University (OH), the University of Michigan (MI), and Prairie View A&M University (TX).

Central State University	
Mohammadreza Hadizadeh, PhD	Semiconductor Education & Research Program Director
Mahmoud A. Abdallah, PhD	Prof. of Manufacturing Engineering
Emdad Ahmed, PhD	Assistant Prof. of Computer Science
Abayomi J. Ajayi-Majebi, PhD	Prof. of Manufacturing Engineering
Tina A. Castonguay	Associate Director of OSP&R
Deng Cao, PhD	Chair of M&CS Department
Mubbashar Altaf Khan, PhD	Research Assistant Prof. of Manufacturing Engineering
Morakinyo A.O. Kuti, PhD	President
Arunasalam Rahunanthan, PhD	Dean, College of Engineering, Science, Technology, & Agriculture
Wright State University	
Subhashini Ganapathy, PhD	Dean, College of Graduate Programs and Honors Studies
Fathi H.M. Amsaad, PhD	Assistant Prof. of Computer Science and Engineering
Darryl K. Ahner, PhD	Dean, the College of Engineering and Computer Science
Travis E. Doom, PhD	Associate Dean of College of Engineering & Computer Science
Billy Kelley	PCB Fabrication & Design Instructor
Ahsan Mian, PhD	Prof. of Mechanical & Materials Engineering
Ivan Medvedev, PhD	Chair of Physics Department
Saiyu Ren, PhD	Prof. of Electrical Engineering
Daniel Sim, PhD	Microelectronics Fabrication Instructor
University of Michigan	
Rachel S. Goldman, PhD	Prof. of MSE, Physics, EECS
Kevin Pipe, PhD	Prof. of Mechanical Engineering
Anthony Waas, PhD	Prof. of Aerospace Engineering
Veera Sundaraghavan, PhD	Prof. of Aerospace Engineering
Pierre Ferdinand Poudeu	Prof. of Materials Science and Engineering
Akesha Moore	Education and Outreach Coordinator
Prairie View A&M University	
Suxia Cui, PhD	Prof. of Electrical & Computer Engineering
Nabila Shamim, PhD	Associate Prof. of Chemical Engineering
Lujun Zhai, PhD	Postdoctoral Researcher in Electrical & Computer Engineering
Abhitej Divi	PhD Candidate in Electrical Engineering
Elizabeth M. Dada	PhD Candidate in Electrical Engineering

Useful Information

First Day Agenda

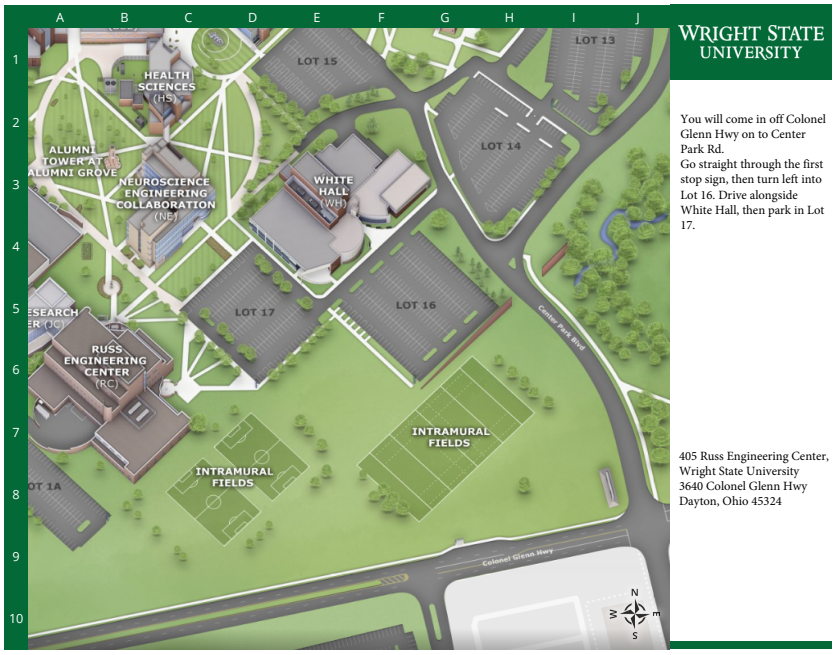
09:00 – 09:30	Registration
09:30 – 09:45	Welcome and Overview of the ISEP-CSU Project (Dr. Hadizadeh)
09:45 – 10:00	Overview of the Summer Internship Program (Dr. Amsaad)
10:00 – 10:40	Intel Career and Internship Opportunities (Ms. Murdock)
10:40 – 12:00	Lab Tours
12:00 – 13:00	Lunch

Internship Location at the Wright State University

- **Location:** Neuroscience Engineering Collaboration Building, Wright State University.
- **Address:** 3640 Colonel Glenn Hwy, Fairborn, OH 45324.
- **Google Maps link:** https://maps.app.goo.gl/k8FEMJJqC5ABdSRa9

The following image provides an overview of the parking facilities at the Wright State University.

- **Visitors Parking Lots:** Lot 16/17, Wright State University.
- **Parking Address:** 3640 Colonel Glenn Hwy, Fairborn, OH 45324
- **Google Maps link:** https://maps.app.goo.gl/L3Y6eF3gyjg2yUy4A



Dining Options

As part of the internship program, you will have the flexibility to manage your own lunch arrangements. The University offers an excellent Dining Facility that you might want to consider. It provides a wide variety of foods and caters to various dietary preferences and restrictions. Here, you can enjoy a balanced meal and converse with fellow interns and even university students, which can potentially lead to enriching discussions and new connections. We recommend that you use this lunch period to not only satiate your hunger but also to immerse yourself in the community, make new friends, and enjoy your time here at Wright State University. If you'd prefer to step out, you have numerous options in the vicinity of the campus as well. There are a variety of local restaurants nearby, serving diverse cuisines.

- **On Campus Dining Options:**
  - Student Union: 10am – 2pm
  - Starbucks in Dunbar Library: 8am – 1pm
- **Off Campus Dining Options:**
  - Tik's Thai Express LLC, 2808 Colonel Glenn HWY, Fairborn, OH 45324
  - Rapid Fired Pizza, 2800 Colonel Glenn Hwy, Fairborn, OH 45324
  - Hoshi Ramen, 2820 Colonel Glenn HWY, Fairborn, OH 45324
  - Yaffa Grill, 2844 Colonel Glenn HWY, Fairborn, OH 45324
  - El Rancho Grande, 3070 Colonel Glenn HWY, Fairborn, OH 45324
  - Penn Station East Coast Subs, 3800 Colonel Glenn HWY 100, Fairborn, OH 45324

The organizers of the internship will arrange group lunches every Friday, which will be attended by all interns and instructors.

Remember, lunchtime is your own time - enjoy it as you wish!

WiFi Accesses

Free WiFi will be available during the internship. The WSU also provides access to an eduroam network.

- **WiFi: Public Domain (WSU_EZ_Connect)**

Housing at Wright State University

Check-in

WSU housing office is open Monday – Friday from 9am - 4pm.

The Hub | 2000 Zink Road Fairborn, OH 45324

When you arrive, we will need to verify your ID. Then, we will issue you your key packet which contains: a front door apartment key, your bedroom key and a mailbox key for your shared apartment mailbox.

Weekday After-Hours Check-In

If you are unable to check-in during normal office hours, please reach out to us immediately to arrange an after-hours arrival. Late arrivals can be accommodated by our on-call staff if coordinated in advance.

Weekend Check-In

We kindly request that plan to arrive between 9AM-9PM. Please give our on-call staff a courtesy text or call approximately 30 minutes to an hour before you arrive. They will meet you at your assigned apartment.

On-call staff | 937.409.0901

Parking

Parking permits must be purchased for all vehicles on campus. Please touch base with your coordinator to ensure a pass has been purchased for your vehicle. Parking passes can be purchased through the Parking Pass Purchase Site.

Linens (if applicable)

Linens are an optional service, only available upon request. If you are interested in reserving linens, please reach out to guest housing staff for rate information. If you have reserved linens for your stay, they will be placed in your room. Upon your departure, please leave all linens in your room.

Of course, do not hesitate to contact us should you have any questions!

Residence Life & Housing

Wright State University | (937) 775-4172
housing_guest@wright.edu
wright.edu/residence-life-and-housing/guest-housing

Acknowledgment

The organizing team of the 2025 Summer Internship in Semiconductors and Microelectronics gratefully acknowledge Intel for their generous sponsorship and ongoing support of the Semiconductor Education and Research Program at Central State University (SERP-CSU). Intel's support has been instrumental in launching, sustaining, and expanding this important initiative. We sincerely thank the Program Directors for Intel University Research & Collaboration—Gabriela Cruz Thompson, Melinda Murdock, and Lisa E. Depew—for their guidance and contributions to the success of the program. Their expertise and support have been essential in shaping the experience and outcomes for our interns.

We also extend our heartfelt appreciation to Dr. Rachel S. Goldman, Professor and Director of the Center for Materials Innovation at the University of Michigan (an NSF MRSEC), for hosting four CSU students for summer research training. Her coordination of hands-on learning across various labs added substantial value to the students' technical development. Special thanks go to Dr. Suxia Cui, Professor and Graduate Program Coordinator in the Department of Electrical & Computer Engineering at Prairie View A&M University, for hosting another group of four CSU students. Her efforts in facilitating lab-based training have significantly enhanced the quality of the students' summer experience.

In addition to Intel's ongoing support since 2022, we acknowledge the scholarship funding made possible by two NSF-funded projects at Central State University: i.) Partnership for Advancing Research Capacity in Semiconductors at Historically Black Colleges and Universities (NSF Grant No. 2430293), ii.) Advancing Semiconductor Education through Expansion and Diversification (NSF Grant No. 2436204). Thanks to Intel's contributions and NSF support, we were able to scale the 2025 internship program and provide hands-on training to 46 interns, selected from a competitive pool of 309 applicants—an acceptance rate of approximately 15%. Each intern received a $5,000 scholarship, covering stipends and meal allowances, along with housing accommodations at their respective internship sites. This combined support made it possible to offer a comprehensive, immersive experience across multiple locations.

We also thank Central State University and Wright State University for their key roles in organizing and hosting this program. Their commitment to hands-on technical education has helped ensure a productive and engaging learning environment. Finally, we thank all 2025 interns for their dedication and enthusiasm. We look forward to seeing how they apply their experience in the growing semiconductor and microelectronics field. With the support of Intel, NSF, and our partner universities, we are proud to help build the next generation of the semiconductor workforce and look forward to your continued success.

Semiconductor Education & Research Program at Central State University (SERP-CSU)

Semiconductors are foundational to modern technology, driving advancements in sectors ranging from consumer electronics to defense systems. Their robust domestic manufacturing is essential for national economic competitiveness and security. However, the global shortage of skilled semiconductor professionals significantly threatens future innovation and technological growth. In response, Intel has committed $28 billion to establish state-of-the-art production facilities in Ohio, expected to become operational by 2030. This major investment will directly employ approximately 3,000 skilled technical workers and indirectly generate tens of thousands of additional jobs across supplier and partner networks, profoundly benefiting the regional economy. Central State University, in collaboration with five other esteemed Ohio institutions—Cedarville University, Stark State College, The Ohio State University, Wright State University, and Youngstown State University—is strategically addressing the semiconductor workforce shortage through its comprehensive Semiconductor Education and Research Program (SERP-CSU). The program is dedicated to developing a modernized curriculum, enhancing laboratory facilities, and expanding experiential learning opportunities. The Summer Internship Program exemplifies CSU's targeted workforce development approach, directly aligning participants' training with the specific skills required by Intel's future Ohio facility. The curriculum emphasizes electronic hardware design, fabrication, and security—competencies essential for roles such as Manufacturing Technicians, Equipment Technicians, Automation Technicians, Facilities Technicians, Process Engineers, Yield Engineers, and Manufacturing Engineers. This direct linkage transforms the internship from a purely educational opportunity into a clear career pathway, significantly reducing onboarding times for future employers and enhancing interns' immediate job readiness. Moreover, the program's impact extends beyond Intel, positioning SERP-CSU as a critical talent pipeline for the broader semiconductor ecosystem in Ohio and nationally. By fostering a sustainable workforce, CSU supports the strategic ambition of establishing Ohio as a leading semiconductor manufacturing hub, reinforcing the indispensable role academic institutions play in regional economic development and national technological leadership.

At SERP-CSU, we are committed to fostering an innovative and inclusive environment that prepares the next generation of engineers and researchers to lead advancements in the semiconductor industry. Join us in shaping the future!

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https://www.centralstate.edu/semiconductors