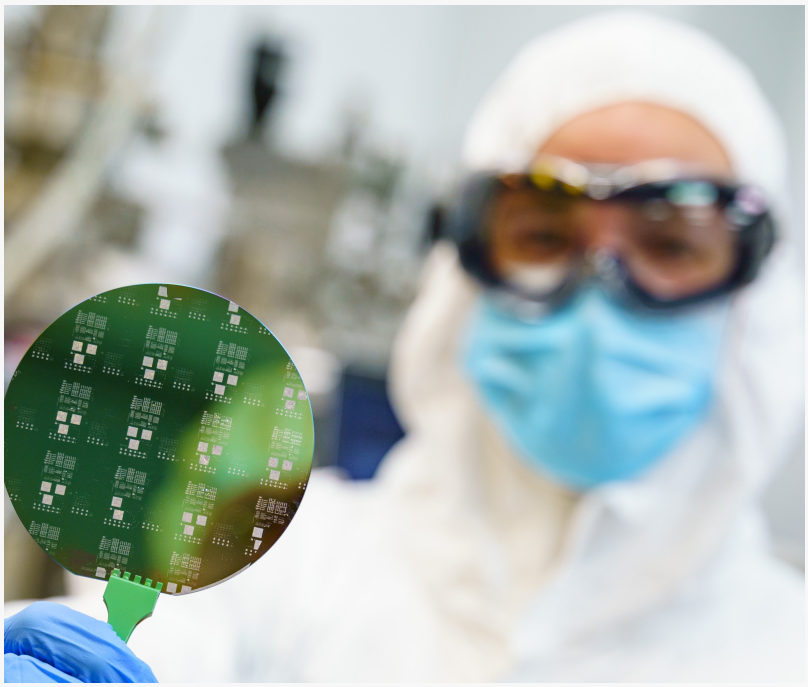
Rose-Hulman Partnering with Univ. of Illinois & Stanford on Intel-Supported Microelectronics, Semiconductor Initiative

This effort is intended to revitalize America's microelectronics and semiconductor industry to meet future manufacturing workforce needs and employee training



Students learn about the design, fabrication and testing of silicon-based optical devices and photonic integrated circuits as early as their first year at Rose-Hulman.

TERRE HAUTE, IN, UNITED STATES, March 13, 2023 /EINPresswire.com/ -- Rose-Hulman Institute of Technology is partnering this year with the University of Illinois Urbana-Champaign and Stanford University to establish the Intel-sponsored Higher Educational Initiative in Integrated Device Manufacturing (HIVE). This effort is intended to revitalize America's microelectronics and semiconductor industry to meet future manufacturing workforce needs and make the industry more accessible to future employees.

The initiative will bring researchers and educators from these three institutions together with industry partners to update semiconductor manufacturing and microelectronics curricula and develop pathways that could potentially impact students through university coursework and broader engagement and training opportunities each year.

As an esteemed undergraduate STEM institution, Rose-Hulman's Department of Physics and Optical Engineering maintains state-of-the-art fabrication and testing equipment for teaching and research and development. Its Micro-Nanoscale Devices & Systems (MiNDS) cleanroom facility is used to teach semiconductor device manufacturing and a silicon photonics course for training students in design, fabrication and testing of silicon-based optical devices and photonic integrated circuits (PICs).

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>
> *Azad Siahmakoun, PhD, Professor of Physics and Optical Engineering*

Many graduates who have completed Rose-Hulman's Certificate in Semiconductor Materials and Devices are using skills gained in the program to work in semiconductor industry. The institute also offers sophomore/junior-level nano-engineering courses for nanofabrication and self-assembly and MEMS courses for all undergraduate majors of junior-class standing. Junior/senior-level semiconductor courses use the cleanroom to manufacture transistors used prevalently throughout the semiconductor industry.

"This partnership (with Illinois and Stanford) is an ideal collaboration of top institutions in integrated semiconductor and microelectronics manufacturing," said Azad Siahmakoun, PhD, founding director of Rose-Hulman's MiNDS cleanroom facility and professor of physics and optical engineering. He is co-leading the educational initiative and believes the strengths of all three institutions will ensure HIVE's success.

"Rose-Hulman is an undergraduate institution focused on educating engineers, and both Stanford and Illinois are leaders in semiconductor research with strong ties to industry," he said.

Siahmakoun has developed summer programs for students from Korea and Saudi Arabia to learn about fabrication and testing of MEMS, plasmonic and bandgap engineering devices and other cleanroom techniques. Under the HIVE program, the professor will build upon those experiences to develop summer workshops for United States undergraduate and technical/community college students and their interested faculty. This will increase skill development through training in device design, layout, fabrication, characterization, and testing semiconductor devices and silicon-based photonic integrated circuits, with an emphasis on skills needed by industry partners in the workforce.

Through the HIVE partnership, Rose-Hulman will consult with industry partners and academic collaborators to update its certificate program and hands-on physics, optical engineering, electrical engineering, and computer engineering curricula to meet future semiconductor industry demands.

The United States currently produces 10-12% of the world's microelectronics. To improve upon this strategic weakness, the government's CHIPS and Science Act appropriated $52.7 billion to revitalize the domestic microelectronics and semiconductor industry. The HIVE program strives to assist this effort by helping to develop and expand the domestic workforce.

About Rose-Hulman Institute of Technology
Founded in 1874, Rose-Hulman Institute of Technology is dedicated to preparing its students with the world's best undergraduate science, engineering and mathematics education in an environment infused with innovation, intellectual rigor, and individualized attention. The institute is consistently recognized nationally as an elite STEM school for distinctions that include faculty excellence, return on investment, value-added, and career services. Career placement is near 100 percent year after year. Located in Terre Haute, Indiana, Rose-Hulman has an enrollment of nearly 2,200 students. Learn more at rose-hulman.edu.

PHOTOGRAPHS AVAILABLE:
A Dropbox with a variety of images showcasing Rose-Hulman's Micro-Nanoscale Devices & Systems cleanroom facility is available at:
https://www.dropbox.com/sh/49b91qehbtm515j/AABEcKGy0yKYS8DQgsYRhPtCa?dl=0
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