The Scalable Asymmetric Lifecycle Engagement (SCALE) network is the preeminent U.S. program for semiconductor workforce development in the defense sector.

There is a global need for microelectronics that are safe and reliable. However, several factors challenge the design and manufacture of these microchips, including disruptions in the production chain and an urgent need to rapidly expand the skilled microelectronics workforce.

Led by Purdue, funded by the DOD and managed by NSWC Crane, SCALE promotes a different approach to training highly skilled U.S. microelectronics engineers, hardware designers and manufacturing experts. SCALE brings together a public-private-academic partnership of 22 universities and 48 partners within the defense industry and government. The industry and government partners regularly meet and update a list of knowledge, skills and abilities important for new entrants to the workforce. The universities then update their curriculum to ensure the students are prepared for upcoming needs in the rapidly advancing microelectronics field.

**KEY TECHNOLOGY FOCUS AREAS**
- Radiation-Hardening
- Heterogeneous Integration
- System-on-Chip
- Embedded Systems/AI
- Supply-Chain Awareness
- Radio Frequency/Optical Electronics

David Halbrooks tests advanced packaging techniques. (Purdue University/Charles Jischke)
UNPARALLELED TRAINING OPPORTUNITIES
As of mid-2023, the Department of Defense granted SCALE four more years and $20 million more in funds, possibly exceeding $100 million. With this, SCALE goals for the next five years include:

• Growing to over 1,000 students, 100 industrial partners, and 25 universities.
• Achieving sustainable K-12 classroom engagements across the U.S.
• Expanding microelectronics curriculum within community colleges and directly to practicing professionals via continuing education offerings.

SCALE-enrolled undergraduate and graduate students get mentoring, internships and research opportunities at the companies, universities and federal research organizations in the network.

JOB PLACEMENT
SCALE’s partnership assists students and employers in finding suitable matches for specialists in each area of SCALE, ranging from internships for first-year undergraduates to Ph.D. job placements.