

Beyond the Basics: PUIs and the Advanced Training of Semiconductor Professionals

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Abstract

Behind the excitement that comes with announcements of new semiconductor manufacturing plants in the US lurks the threat of not finding enough qualified people to operate them. Taking advantage of current undergraduate training programs is one way to fill this need. Primarily undergraduate institutions (PUIs) like Rose-Hulman Institute of Technology (RHIT) have a long history of involving undergraduate students of all levels in their scientific research and blending those topics into their coursework. RHIT's NanoEngineering program integrates undergraduates into a cleanroom environment early on, fostering their ability to design, innovate, and analyze devices independently by graduation. Projects span various technologies, from diffraction gratings to MEMS to transistors, culminating in industry-sponsored capstone projects requiring students to develop processes within tight deadlines. With their greater focus on teaching and mentoring, PUIs are well-positioned to train the next generation of leaders in semiconductor manufacturing. In this talk, I will discuss the benefits of PUI environments for engineering students, specific ways that RHIT has merged advanced training into the undergraduate curriculum, and strategies for weaving relevant high-level skills into the curricula of any institution.