

Board 227: Building Interest in Technology Careers through a Five-Week Saturday Program

Dr. Karen Woszczyna-Birch, National Center for Next Generation Manufacturing

Dr. Karen Woszczyna-Birch has been a champion of engineering and technology education for the past 30 years. Since 1995, she has been the state director of the CT College of Technology (COT) where her leadership has been instrumental in creating nationally recognized seamless pathway programs in engineering and technology between all 12 public community colleges in CT with 10 universities and high schools. She is also the Executive Director and Principal Investigator of the National Center for Next Generation Manufacturing (NCNGM), a National Science Foundation (NSF) Center of Excellence and a Professor of Applied Technology at Tunxis Community College. Since 2004, she has received over \$25M in funding from the NSF, including two grants for international partnerships. Karen has implemented strategies resulting in an increase in the enrollment of underrepresented populations in STEM programs at the community colleges.

Karen has received numerous awards for her accomplishments as a professor and for her passion for increasing the diversity of the STEM population including the 2016 Distinguished Service Award from the international honor society Epsilon Pi Tau (EPT), the 2018 CT Women of Innovation Award in the Postsecondary Academic Innovation & Leadership Category, the 2012 New England Board of Higher Education Excellence Award for the State of CT and most recently, the 2020 HI TEC Innovative Program of the Year Award and 2021 ITEEA Special Recognition Award. In 2014, she was invited to the White House College Opportunity Summit recognizing leaders like Karen for their commitment to STEM education. She also serves on numerous local and national boards including the Epsilon Pi Tau Honor Society, Hartford High's Pathway for Engineering and Green Technology, and the Connecticut Technical Education and Career System.

Building Interest in Technology Careers through a Five-Week Saturday Program

The goal of the “Building Career Interest in Computer Science through Advanced Real-World Technology Projects” (CICSTART) program, funded by the National Science Foundation Advanced Technological Education (NSF ATE) program (DUE#2113261), is to provide additional professional and technical skills to cohorts of high school students through a five-week Saturday Program. The curriculum is continuously reviewed and modified to address current skills needed by the technician workforce. While this program was originally proposed and planned as in-person, the leadership team decided to shift to a virtual environment as the pandemic caused the closure of community college campuses where the program was to be held. Program modalities and curriculum were modified to shift to an online experience. In Fall 2022, the program was able to return to an in-person format.

CICSTART’s leadership team disseminates best practices through presentations, social media, publications, and workshops at national conferences. The four-day Summer Teachers’ Workshop brings high school and community college educators from throughout the United States to experience the same program that is used for the high school students. CICSTART’s outreach efforts and the national dissemination of best practices for engaging underrepresented populations in technology careers has a national impact that will potentially increase the diversity of the technician workforce. The program has inspired participants to have confidence in their own abilities. Principals from participating high schools have commented that students who attended the CICSTART have demonstrated an improvement in their academics and behavior due to the knowledge of professional and technical skills that they have gleaned from the program.

The program has provided inner-city students from four high schools with out-of-school, hands-on educational programs focusing on professional skills, technical writing, and engineering technology skills. Participant demographics will be discussed in this paper as diversity is a key objective of the program. The program utilizes industry-driven, project-based learning (PBL) and lessons in career and college readiness to prepare students for the workforce. Each student session consists of five consecutive Saturdays and is taught by a team of high school teachers, community college faculty, and instructors with expertise in professional skills, teambuilding, leadership, technical writing, coding, CAD software and additional engineering technology skills. CICSTART has had 81 participants with average participant demographics at 88% from minority populations and 57% female students.

A four-day Summer Teachers’ Workshop brings high school and community college educators from throughout the United States to experience the same program that is used for the high school students. The participants are presented with the same professional skills and technical skills modules that the student participants are given. Summer Teachers’ Workshop participants are provided with stipends for their participation and have the opportunity to receive an additional stipend by submitting professional skills or technical skills curriculum based on what

they learned during the workshop. In 2022, fourteen educators from eight states participated in the workshop.

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