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BOARD # 397: NSF ATE: A Virtual Mentoring to Support Community Colleges through the NSF ATE Proposal Submission Process

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Dr. Karen Wosczyna-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 $30M 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.

NSF ATE: A Virtual Mentoring Program to Support Community Colleges through the NSF ATE Proposal Development and Submission Process

Introduction

The *Mentor Up: Supporting Preparation of Competitive Proposals to Improve Education of the Skilled Technical Workforce* (Mentor Up) grant (DUE#2032835), funded by the National Science Foundation Advanced Technological Education (NSF ATE) program, provides a mentoring program for community colleges teams submitting NSF ATE proposals [1]. The project aligns with the NSF ATE program objective to provide leadership opportunities for faculty at two-year institutions and supports the national priority of educating the skilled technical workforce for the industries that keep the United States globally competitive. [2] The key outcome of Mentor Up is an increase in the number of competitive NSF ATE proposals submitted by community college faculty.

Project activities

Specific activities of Mentor Up include virtual mentoring and webinars as well as a virtual 2.5-day workshop where two-year faculty who are teaching technician education learn the strategies and NSF requirements for writing and submitting competitive proposals. Although this project was developed with an in-person workshop as one of its components, it was modified to a virtual workshop during the pandemic. Following the pandemic, the project leadership team decided to keep the workshop in a virtual format to accommodate potential participants who may face barriers to travel. Through these activities, participants learn strategies for institutional investment in pursuit of NSF ATE program grant funding and increase project team expertise in the NSF ATE proposal writing process. Participants also learn to address many of challenges faced by community college faculty in preparing and submitting NSF grant proposals. For community colleges awarded NSF ATE grants, this project results in improved student access to education and acquisition of skills needed to enter the workforce as STEM graduates whose contributions will advance the nation's economic goals for meeting emerging workforce needs.

A pilot Pre-Application Mentoring program was offered for teams applying to the 2024 cohort. As part of the cohort application process, teams must submit a one-page summary of their proposed project. The leadership team found a common weakness in these applications was the identification of workforce needs and/or industry partnerships. The goal of the pre-application mentoring was for teams to work with a mentor as they are developing the summary and ensuring teams understand the importance of workforce needs and industry partnerships in NSF ATE proposals and projects. This also allowed teams to focus on developing their project through the lens of having this information in place already.

Mentors, who are former NSF ATE program officers and current and former NSF ATE grant principal investigators, began working with their teams virtually as they were assigned following team acceptances. Each team received a set of preworkshop questions to help them prepare their proposal and help to identify additional representatives from their institutions who need to be contacted for the proposal submission. Mentors and mentees were provided with a timeline of all important dates and deadlines for the project and the NSF ATE proposal submission. Deadlines ensure there will be ample time for feedback and from mentors and project leadership. The Co-

PIs also offered to provide an optional thorough review and feedback of proposals that were 80% complete by mid-August. After one of the Co-PIs read the proposal, they would provide detailed feedback in writing and with a Zoom call if the mentee team requested one.

The virtual workshop is held is early in the summer. Attendees included project PIs, mentors, mentee teams, and grant writers and administrators from participating colleges All presentations were made by the PIs and mentors. Day One included presentations on the ATE solicitation and NSF PAPPG, components of proposals; results of prior work; rationale; demographics; goals, objectives, activities, and deliverables; the one-page summary; and the review process. Mentees were tasked with reading and reviewing redacted proposals for the mock panel on Day Two. Day Two began with mock panel review of redacted NSF ATE proposals where each mentor facilitated a mock panel review with their mentee teams in virtual breakout rooms. There was a final report out from each mock review panel. Day Two also had presentations on timelines and timetables, the management plan, and the budget. Day Three consisted of presentations on evaluation; sustainability and dissemination; and Research.gov and other resources for assistance with developing NSF ATE proposals. Finally, the timeline until the submission deadline in October was also reviewed. Mentors are available to help teams through the negotiation process.

Four webinars were held in July and August on Research.gov and Proposal Forms, Evaluation, Budget, and the IRB. Webinars focus on topics that This was the third year the IRB webinar was offered in response to feedback from past participants commenting that this can be a confusing topic.

Project results

The project has served four annual cohorts from 2021 – 2024 with a total of 61 teams participating. Out of those teams, 40 submitted proposals. In 2024, eight teams participated in the pilot pre-application mentoring, six of those teams applied to the regular cohort, and four of those teams submitted NSF ATE proposals. For the 2021 - 2023 cohorts, 29 proposals were submitted with 20 grants being awarded. Projects cover various disciplines within technician education including but not limited to electric vehicles, advanced manufacturing, engineering technology, green technology, machine learning, biotechnology, GIS, and quantum technology. The 2024 proposal decisions are pending. Overall feedback from the leadership team and mentor team supported including pre-application mentoring for future cohorts. It was noted that this mentoring is a good way to get institutional support and contacts lined up and all online accounts established ahead of time. The additional time was a key in making sure teams had documented the workforce needs, career opportunities, and overall viability for their project.

References

[1] ATE Central, *ATE Projects and Centers.* Retrieved from https://atecentral.net/

[2] National Science Foundation Website, *Advanced Technological Education (ATE) Solicitation*. Retrieved from: https://www.nsf.gov/funding/opportunities/ate-advanced-technological-education

Acknowledgements

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