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Abstract: Across the United States, there are approximately 598,000 unfilled cybersecurity positions. The National Cybersecurity Training and Education Center (NCyTE), hosted at Whatcom Community College (WCC), is a National Science Foundation (NSF) Advanced Technological Education Center working to bridge this gap by providing educational resources and development opportunities for faculty and students.

Keywords: cybersecurity

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1. Introduction

From hospitals and school systems to public utilities and agriculture, this country's ability to function increasingly depends on the information systems that support these structures. As technology has become more integrated into every aspect of our lives, the prospect of widespread disruption from cyberattacks has also increased.

Across the United States, roughly 1 million cybersecurity professionals are working to protect our nation against cyber threats. This seemingly impressive number belies a more sobering truth — there are approximately 598,000 cybersecurity positions currently waiting to be filled in the U.S., including 1,700 within the Department of Homeland Security.

The number of qualified cybersecurity professionals graduating from educational programs in the U.S. is being outpaced by the growing number of open jobs. The National Cybersecurity Training and Education Center (NCyTE) seeks to bridge this gap through several programs, with an emphasis on:

- Outreach to communities that have been historically underrepresented in the cybersecurity field.
- Collaborating with national leaders in cybersecurity education to develop and disseminate leading-edge curriculum — such as the College Board-endorsed Advanced Placement (AP) Computer Science Principles (CSP): Cybersecurity course developed in collaboration with CodeHS.
- Providing professional development opportunities nationally to faculty members, high school teachers, and graduate students — giving them new tools and skills for teaching cybersecurity in their classrooms.
- Offering program development workshops to help institutions develop new — or enhance existing — cybersecurity programs.
- Leveraging partnerships with industry leaders to connect graduating students with hiring employers via NCyTE hosted events such as virtual career fairs and industry nights.

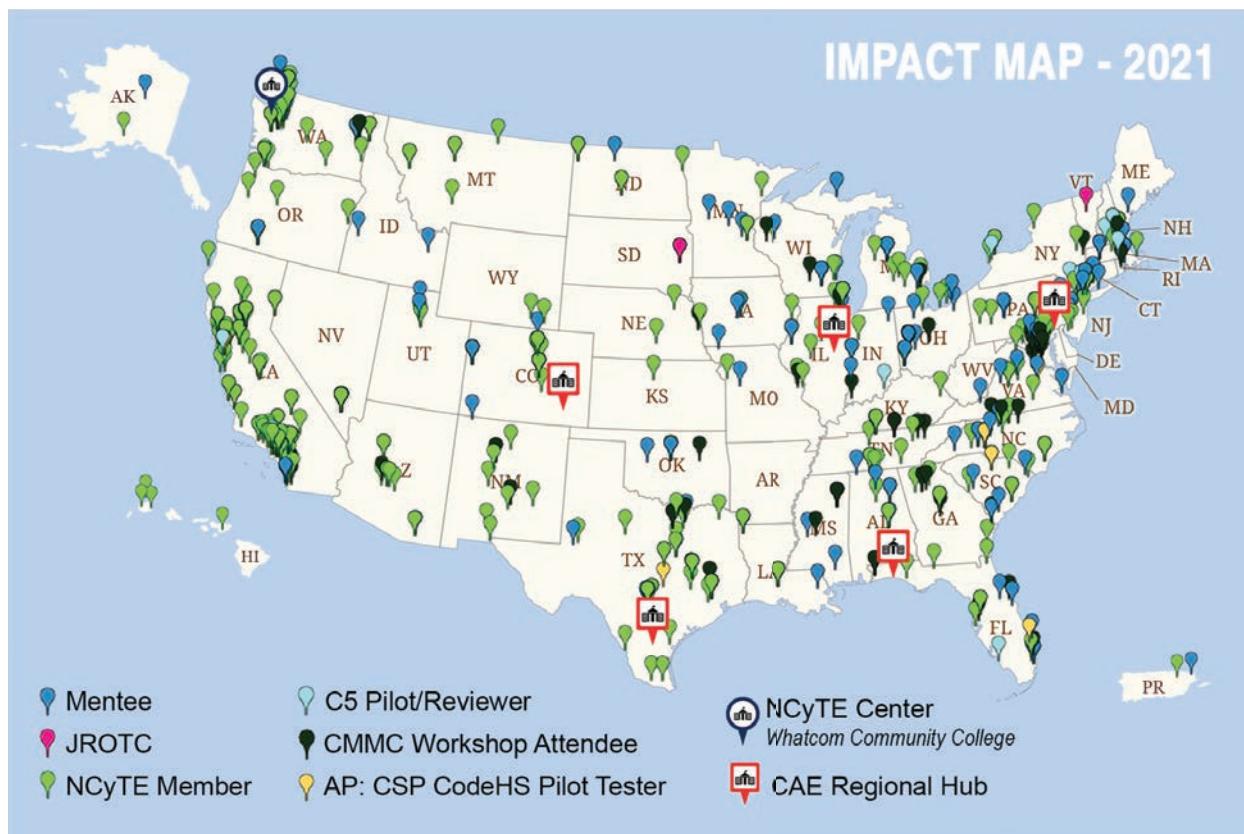


Fig. 1. All institutions NCyTE has collaborated with, reflecting total national cybersecurity efforts associated with NCyTE and WCC

The NCyTE Center began as an NSF ATE Regional Center in October 2011 and became a National Center in October 2021. This growth has enabled NCyTE to expand its services and membership base significantly and reach a broader audience. Some of NCyTE's current initiatives include:

- Organizing and hosting a two-day summit in June 2022, in collaboration with the Center for Systems Security & Information Assurance (CSSIA), where leaders and stakeholders in cybersecurity education will discuss the progress and impacts of community colleges on workforce development and contribute to recommendations for the future.
- Accelerating Community College Cybersecurity Excellence (ACCCE) — a project funded by Microsoft, focused on increasing the number of cybersecurity faculty from underrepresented communities.
- An Industrial Control Systems (ICS) Cyber Range being developed in collaboration with Anvil Corporation that will be located at Anvil's Bellingham campus and available for use by WCC students and Anvil and NCyTE employees.
- A new partnership between Whatcom Community College and the U.S. Cyber Command Academic Engagement Network. The network was developed to build a more robust cybersecurity workforce, increase cyber applied research and innovation, expand cyber-focused analytic partnerships, and enrich strategic cyber dialogue.

As recent cybersecurity threats have shown – from Solarwinds to Log4j – the need for cybersecurity professionals will continue to grow and become more complex. NCyTE is addressing these demands by supporting educators and students as they build a strong, responsive workforce to meet cyber challenges today and in the future. NCyTE is honored by our inclusion in the Journal of Advanced Technological Education (J ATE) and is proud to be a member of the incredible community of institutions taking on the task of preparing the future technical workforce of our nation.