

NCyTE FACULTY EXTERNSHIP PROGRAM:
2023 ANNUAL
REPORT

Inaugural Year:
Connecting Cybersecurity Faculty with Industry

PROGRAM YEAR 2023

Kyle Jones

Department of Information Technology,
Sinclair Community College

Prepared from participant final reports, program records, and applicant data.

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ABOUT THIS REPORT

The NCyTE Faculty Externship Program Annual Report documents the accomplishments and impact of the program's inaugural 2023 cohort. Developed from participant final reports, program records, and application data, this report showcases how faculty externships bridge education and industry by fostering professional growth, strengthening curriculum, expanding partnerships, and preparing students for the evolving cybersecurity workforce. It also captures key outcomes and lessons that continue to guide the program's growth and future success.



Executive Summary

2023 marked the launch of the NCyTE Cross-Disciplinary Faculty Externship Program. In its inaugural year, the program attracted 33 faculty applicants from 18 states and Puerto Rico and placed twelve cybersecurity, IT, and engineering faculty members in working industry and government environments for a minimum of 80 hours each. Placements reached remarkably diverse settings — a federal consulting firm in Alabama, a municipal IT department in Illinois, a city information-security office and textile manufacturer in North Carolina, a justice department in Ohio, a disaster-management organization in wildfire-stricken Hawaii, a Security Operations Center in Wisconsin, and cybersecurity firms including Proofpoint, SecureCyber Defense, and TechSolve.

Every completing participant reported that the externship was valuable and exceeded expectations. All returned with new skills — several earned professional certificates along the way — and every participant committed to concrete curriculum changes: new labs and software tools, standardized documentation practices, framework-based GRC exercises, a brand-new malware reverse engineering course, and, in one case, a \$300,000 grant application for Next-Generation Firewall training equipment. Just as importantly, the pilot year generated durable industry relationships: new advisory board members, guest speakers, student internship sites, and two host organizations committing to host externships on an ongoing basis. The inaugural cohort’s feedback — start earlier and run longer — directly shaped the program’s administration in subsequent years.

33	12	19	9	80+
Applicants	Participants	Applicant States & Territories	Participant States	On-Site Hours Each

Program Launch & Overview

The Cross-Disciplinary Faculty Externship project was created for the National Cybersecurity Training & Education Center (NCyTE) to give faculty direct, hands-on exposure to how cybersecurity is practiced in industry, with a founding emphasis on manufacturing and the state Manufacturing Extension Partnership (MEP) network. Faculty commit to a minimum of 80 hours with a host organization over the summer, then document the experience in a final report with recommendations for curriculum improvements and present their findings to colleagues in the fall. As a first-year effort, 2023 required building the program from the ground up: recruiting faculty and host companies state by state, and creating the templates, letters, contracts, and MEP reference materials that now underpin the program.

2023 Selection Pipeline and Program Build-Out

Program Launched	Inaugural year of the Cross-Disciplinary Faculty Externships (MEPS) project for NCyTE, with recruiting of faculty and host companies beginning in early 2023
Applications Received	33 faculty from 18 states plus Puerto Rico (as of the May 2023 applicant list)
Qualifying Criteria	Full-time faculty status; 80-hour commitment; on-site availability; administration approval; comfort in manufacturing environments; MEP familiarity
Cohort Completing	12 faculty from 9 states, with hosts spanning consulting, defense contracting, municipal and city government, education technology, textiles, disaster management, and cybersecurity services
Infrastructure Built	State-by-state MEP fact sheets and web links, employer introduction letters, acceptance/rejection letter templates, an externship contract template, and outreach to national partners including MITRE, MTSI, FastLane, TechSolve, and Boeing

The applicant pool spanned Alabama, California, Florida, Georgia, Hawaii, Idaho, Illinois, Maryland, New Jersey, North Carolina, Ohio, Oregon, Tennessee, Texas, Vermont, Virginia, Washington, Wisconsin, and Puerto Rico — a national footprint from the program's first year. Alongside recruiting, the program produced one-page MEP fact sheets for eighteen states, a state-by-state MEP web directory, employer introduction letters, standardized acceptance and non-selection letters, and an externship contract template adapted from Whatcom Community College.

The 2023 Cohort

Twelve faculty members completed externships and submitted final reports:

Cohort Placements

Faculty Participant	Home Institution	Externship Host	Host Location
Mariama Bah	Saint Peter's University (NJ)	Code Ninjas Franchise	Red Bank, NJ
Debasis Bhattacharya	University of Hawaii Maui College (HI)	HDEP International & PDC Global	Hawaii
Felix Davis	College of DuPage (IL)	Bolingbrook Municipality IT Department	Bolingbrook, IL
Victoria Ferrell	Forsyth Technical Community College (NC)	City of Winston-Salem IS Dept. & Elevate Textiles	Winston-Salem / Greensboro, NC
Julian Jones	Sinclair Community College (OH)	Vandalia Justice Department	Vandalia, OH
Jens Mache	Lewis & Clark College (OR)	Proofpoint	Remote / OR
Mike Masino	Madison College (WI)	Security Operations Center (host not named)	WI
Eric Renegar	Sinclair Community College (OH)	SecureCyber Defense	OH
Francisco Salinas	South Texas College (TX)	Industry host (not named in report)	TX
Walter Schilling	Milwaukee School of Engineering (WI)	Digital-transformation consultancy (not named)	Milwaukee / Chicago
Rosalyn Warren	Enterprise State Community College (AL)	Advantage Consulting & Solutions	AL
Paul Weingartner	Cincinnati State Technical & Community College (OH)	TechSolve	Cincinnati, OH

Several participants' host organizations were not named in their final reports and are identified above by sector only.

Externship Highlights

Cybersecurity Amid Crisis: Debasis Bhattacharya in Hawaii

Debasis Bhattacharya of the University of Hawaii Maui College split his externship between HDEP International, a real-estate title insurance outsourcing firm, and PDC Global, a government-funded disaster-management organization — just as the devastating Maui wildfires struck, limiting on-site work but making the experience singularly relevant. The externship directly reshaped his program: capstone projects in the ABIT bachelor's program will now be sponsored and incubated by real firms, with students working alongside industry mentors on problems identified for the common good of Maui. New modules emerging from the experience include cybersecurity of critical infrastructure (hospitals, power grids, water supply), drone surveillance for disaster monitoring, cyber misinformation after disasters and before elections, AI-based detection of insurance document fraud, and AI/GIS tools for wildfire risk assessment. The redesign was shared with his advisory board within weeks of the externship's end.

From Firewalls to Funding: Eric Renegar at SecureCyber Defense

Eric Renegar of Sinclair Community College embedded with SecureCyber Defense, a firm whose analysts come from the Secret Service, law enforcement, and the military, to study how education, government, manufacturing, and telecommunications clients roll out and support cybersecurity. His focus on Next-Generation Firewalls (NGFWs) revealed rising demand — particularly among smaller organizations — and a corresponding shortage of trained technicians. The results moved quickly from insight to action: Sinclair's CSIT department is applying for a \$300,000 grant to acquire NGFWs for hands-on student training, the college is exploring becoming a Fortinet Authorized Training Center aligned with the NSE certification program, and curriculum revisions to cover NGFWs are underway. The company was so pleased with the pilot that it committed to offering more externships going forward.

Additional Placements Across the Cohort

- **Rosalyn Warren (Enterprise State CC)** — At Advantage Consulting & Solutions, a federal contractor, she helped configure a new network server and its security protocols, conducted vulnerability assessments, and — after seeing how the firm uses AI to create security protocols — resolved to teach students to use AI critically rather than ban it, alongside new instruction in the SCAP Compliance Checker and DISA STIGs.
- **Paul Weingartner (Cincinnati State)** — At TechSolve, he worked hands-on with CMMC and NIST CSF compliance projects — including a client aligning to Ford Motor’s proprietary framework — and will rebuild his GRC courses around targeted policy-writing exercises, with tools like FutureFeed added and TechSolve exploring cooperative-education ties with Cincinnati State.
- **Mike Masino (Madison College)** — Embedded in a working Security Operations Center, he confirmed his program’s alignment with SOC practice while identifying gaps — standardized documentation (Obsidian/Markdown), regular expressions, and email log analysis — and secured both expanded student placements and a permanent annual faculty externship at the SOC.
- **Victoria Ferrell (Forsyth Tech)** — Shadowed the City of Winston-Salem’s information security team and toured Elevate Textiles, gaining exposure to Cisco AMP, Tanium, Cylance, change management, and enterprise access controls; both organizations are joining her advisory board, and she plans labs simulating secure network design, WAFs, and Splunk.
- **Felix Davis (College of DuPage)** — At the Bolingbrook Municipality IT Department, he visited all twelve municipal sites and the data center, confirmed his CIT curriculum’s alignment with production technologies (OSPF, Hyper-V, VMware, Cisco VoIP), and is restructuring labs into cumulative, project-based sequences; the CIO joined his advisory board.
- **Jens Mache (Lewis & Clark College)** — Worked with a Senior Reverse Engineer at Proofpoint focused on botnet analysis and e-crime research, and received approval to launch a new malware reverse engineering course (CS-495) in spring 2024.

Additional Placements Across the Cohort

- **Julian Jones (Sinclair CC)** — At the Vandalia Justice Department, observed municipal-safety IT in action — GPS-synced systems, VPN-equipped police vehicles, VMware, and Fortimail — including a live phishing attack and a lightning-strike equipment loss, all now real-world classroom examples.
- **Walter Schilling (Milwaukee School of Engineering)** — At a digital-transformation consultancy, attended client meetings across the business spectrum, observed SCRUM and DevOps practices, completed three LinkedIn Learning certificates, and returned with plans for zero-trust and hub-and-spoke architecture content plus a proposed cybersecurity minor for engineering students.
- **Mariama Bah (Saint Peter's University)** — At Code Ninjas' Red Bank headquarters, combined 55 on-site hours with virtual shadowing of Texas-based teams, assisted the technology team with live malware issues, and returned with mentoring-program plans and first-hand knowledge of employer expectations.
- **Francisco Salinas (South Texas College)** — Identified soft-skill development as the top student need, and will convert his capstone into team-based projects solving real-world problems — collaborating with the speech department and building a new grading rubric — while budgeting for industry technologies not yet taught in the classroom.

What the Cohort Learned

- Cross-Cutting Themes -

Across twelve very different placements, five themes ran through every final report:

- **Real-World Relevance** — Participants gained current, first-hand experience to share with students — consistently described as better preparation than “book information” alone.
- **Networking and Industry Contacts** — Externships produced new advisory board members, student internship sites, and guest speakers, with one host establishing an ongoing annual externship for faculty.
- **Skill Enhancement** — Every participant reported acquiring new skills and a stronger grasp of business practices and processes; several earned professional certificates during the externship.
- **Curriculum Enhancement** — Participants committed to adding new software, technologies, and real-world scenarios to their courses — from NGFWs and CMMC frameworks to documentation standards and AI literacy.
- **Exceeded Expectations** — All participants reported that the externship was valuable and exceeded expectations, describing it as “one-of-a-kind,” “transforming,” and “structured and productive.”

Challenges Identified

The pilot cohort’s most consistent feedback concerned timing rather than substance: the program should start earlier in the year, allowing more time to secure a host company and complete onboarding, and could usefully run longer — one participant suggested at least a month more. Because of the late start, some externships bled into the fall semester and conference season. One participant noted that most advisory-board companies had already finalized summer internship programs by the time recruiting began, and that on-site requirements were difficult in tech sectors still working primarily remotely. These lessons directly informed the earlier timelines and more structured candidate tracking adopted in 2024 and 2025.

Curriculum Impact 2023-24

Every completing participant returned with implementable curriculum plans, including:

- **Sinclair College** will revise curriculum to cover Next-Generation Firewalls, pursue Fortinet Authorized Training Center status, and seek \$300,000 in grant funding for hands-on NGFW equipment.
- **Lewis & Clark College** launched CS-495, a new malware reverse engineering course, in spring 2024 — built on Practical Malware Analysis and CTF-based exercises.
- **Madison College** will standardize student documentation using Obsidian and Markdown — with students swapping documentation to verify usability — and add regular-expressions labs to advanced Linux and Python courses, plus email and log analysis.
- **Cincinnati State** will rework its GRC courses around hands-on CMMC/NIST CSF exercises in which students take a control, write the policy for it, and define the evidence of compliance.
- **University of Hawaii Maui College** redesigned its ABIT capstone around industry-sponsored projects with modules on critical infrastructure, drones, misinformation, and AI-based fraud detection and risk mapping.
- **Enterprise State** will integrate AI into coursework with graded exercises on using it to solve problems, introduce SCAP and DISA STIG tools early for hardening and auditing, and add student portfolios and LinkedIn profiles.
- **College of DuPage** will restructure labs so lower-level course content feeds cumulative, project-based labs in advanced classes, and will evaluate cloud-based VoIP, ticketing, and SDN content with its advisory board.

Participants will gauge impact through student surveys, lab evaluations, exam-score analysis, program-review KPIs, new grading rubrics, and certification pass rates — with several expecting higher pass rates as hands-on opportunities expand.



Partnerships & Networking

For a pilot year, the partnership outcomes were substantial:

- **Mike Masino's** host SOC committed to a permanent externship for one faculty member every summer and to expanding the number of students it takes each year — the program's first standing placement.
- **SecureCyber Defense** will offer additional externships as a direct result of the pilot, opening the door to further collaboration and student engagement with Sinclair.
- **TechSolve** is exploring cooperative-education opportunities with Cincinnati State, and its Senior Cybersecurity Analyst has already met twice with the participant and will guest lecture.
- Advisory boards grew across the cohort: the Bolingbrook CIO, the City of Winston-Salem and Elevate Textiles, Alabama federal contractors, compliance experts met at TechSolve, and Walter Schilling's host company all joined participants' boards.
- Guest speakers, mentor classroom visits, and student project pipelines were arranged at multiple sites, and outreach to national organizations — MITRE, MTSI, FastLane, and Boeing — laid groundwork for future placements.

Looking Ahead

The 2023 pilot proved the model: faculty across nine states returned with sharper skills, current industry knowledge, concrete curriculum changes, and lasting industry relationships — and every participant judged the experience to have exceeded expectations.

The year also surfaced clear operational lessons: begin recruiting and host-matching earlier, allow more time for onboarding, and formalize candidate tracking and selection. Those lessons were carried directly into the 2024 program year, which introduced structured applicant records and demographic tracking, and into 2025's formal review panel — making 2023 not only a successful pilot but the foundation on which the program's growth has been built.



NCYTE CENTER

National Cybersecurity Training & Education Center

The **National Cybersecurity Training and Education Center (NCyTE)** at Whatcom Community College, funded by the NSF, enhances U.S. cybersecurity education by supporting faculty, developing resources, and strengthening industry partnerships to build the cybersecurity workforce.



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