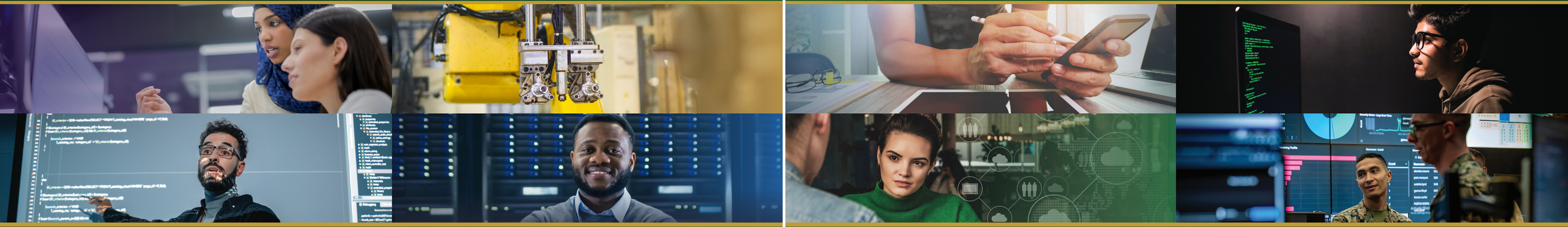
NOVA | Northern Virginia Community College



NOVA IET

INFORMATION & ENGINEERING TECHNOLOGIES

Annual Report 2022-2023

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Message from the VP of IET and College Computing

It's been an extraordinary year for NOVA IET, NOVA SySTEMic, and our students. Whether through the creation of innovative programs like our AI-infused Data Analytics program or through the ongoing success of programs in Data Center Operations and Cybersecurity, we continue to see sustained growth and an outpouring of support from industry. Partnerships with industry leaders such as Amazon, Micron, Google, US Navy, USMC, CACI, Intel, and others, have significantly contributed to our success, enhancing the learning experience for our students.

Additionally, our strategic approach to grants has resulted in securing multiple funding sources, providing critical resources to enrich the learning experience for not only our students, but our entire STEM community. This achievement is a testament to the dedication of our outstanding faculty and staff. Thank you for your pivotal role in shaping a brighter future for all.

Dr. Chad Knights,
Vice President of IET and College Computing

NOVA IET

Preparing Students for the Future of Technology

The Information and Engineering Technologies (IET) division equips NOVA students with the knowledge and skills necessary to succeed in the rapidly growing and high demand fields of IT and engineering technology.

IET programs are aligned to the needs of industry, infused with opportunities to earn industry recognized credentials, and targeted at high growth areas that show significant job demand within the Northern Virginia region.

NOVA offers 2-year IET degrees that include **Information Technology, Engineering Technology, Data Center Operations, Computer Science, Cybersecurity, Information Systems Technology,** and **Cloud Computing,** and also 1-year certificates in similar technology programs.

NOVA | IET
INFORMATION & ENGINEERING TECHNOLOGIES

www.nvcc.edu/iet







NOVA SYSTEMIC

Expanding Regional Capacity for Producing STEM Talent

NOVA SySTEMic, the college's STEM program, collaborates with school divisions, colleges and universities, community organizations, and industry partners throughout northern Virginia to build regional capacity for STEM talent by equipping students for in-demand technology careers.

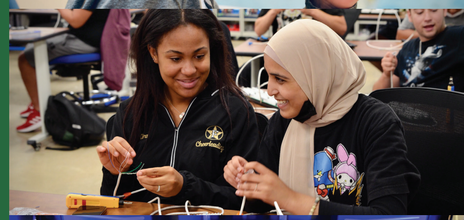
We provide STEM outreach activities for K-12 students to inspire and engage the next generation, prepare college students for STEM and Career and Technical Education (CTE) with co-curricular and work-based learning programs, and develop IET pathways through grant and research proposals.

We operate a state-of-the-art Fab Lab, which prepares students with certifications and degrees. We do **STEM Camps, Bridge Programs, Expos, Internships, Fellowships, Design Challenges,** and more.

NOVA | SYSTEMIC

www.nvcc.edu/systemic




Academic

IET Program Placed Students Fall 2022

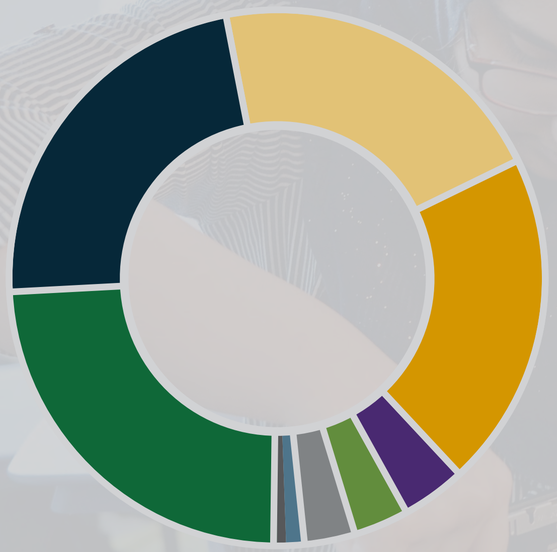
A.A.S. Cybersecurity	2125
A.S. Computer Science	2027
A.S. Information Technology	1863
594	A.A.S. Information Systems Technology
512	Career Studies Certificate
160	A.A.S. Engineering Technology

7,281

Total IET Students

NOVA | Northern Virginia Community College

Designated as a minority-serving institution



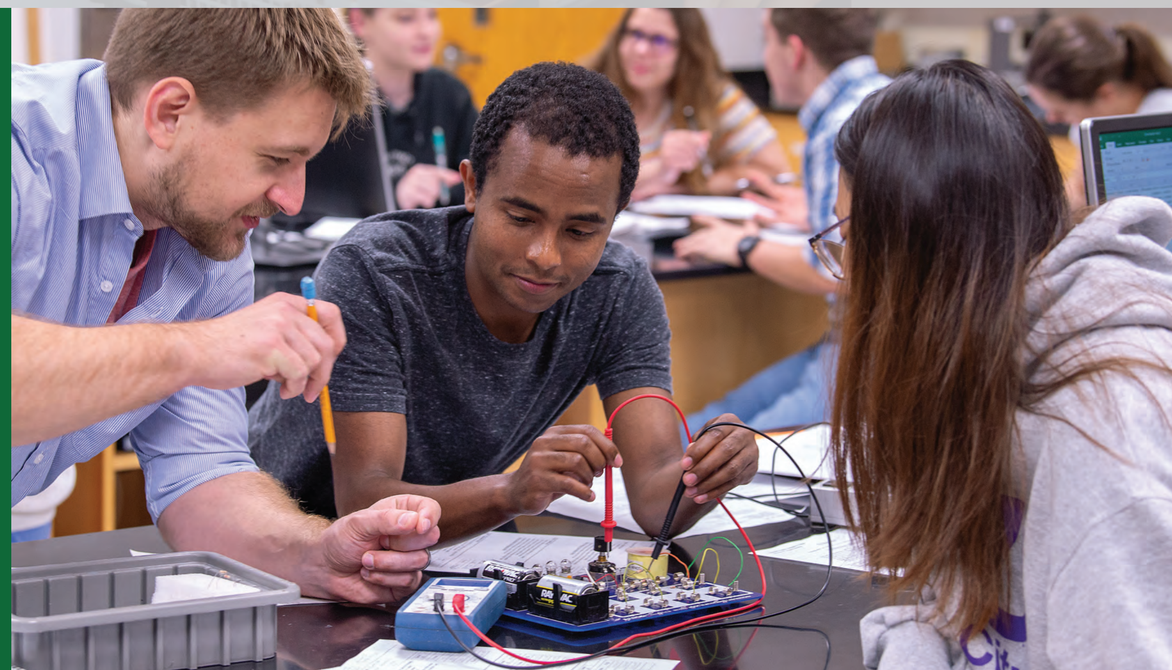
Race/Ethnicity of IET Program Placed Students

- **24.4%** Asian
- **22.8%** White/Caucasian
- **20.8%** Hispanic/Latino
- **20.2%** Black/African American
- **3.9%** Two or More Races
- **3.3%** Nonresident Alien
- **3.3%** Not Specified
- **1.1%** Native Hawaiian/Other Pacific Islander
- **0.3%** American Indian/Alaska Native

26%
identify as women

73%
identify as men

1%
not specified



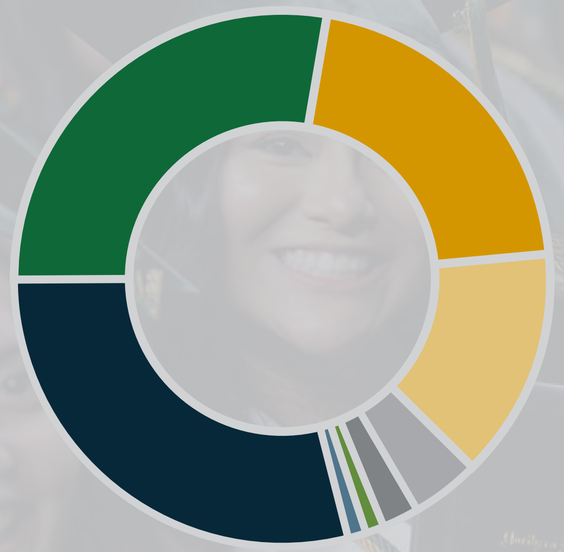
NOVA IET Graduates
Fall 2022-Summer 2023

- **Information Technology** — 443
- **Cybersecurity** — 433
- **Computer Science** — 330
  - 116 Cybersecurity
  - 92 Network Administration
  - 74 Information Systems Tech
  - 55 IT Technical Support
  - 47 IT/ Cloud Computing
  - 37 Networking Engineering
  - 23 Cloud Computing
  - 18 Web Design and Development
  - 12 Engineering Technology
  - 8 Engineering Technology
  - 6 Data Center Operations (DCO)
  - 5 Engineering Tech/DCO
  - 2 Web Design Specialist

LEGEND

2 Year DEGREE	1 Year CERT
A.S. Associate of Science	C.S.C. Career Studies Certificate
A.A.S. Associate of Applied Science	

1,701
TOTAL IET GRADUATES



Race/Ethnicity of IET Graduates

- **28.9%** White/Caucasian
- **27.8%** Asian
- **20.8%** Black/African American
- **14.0%** Hispanic/Latino
- **4.2%** Not Specified
- **2.1%** Other
- **1.2%** American Indian/Alaska Native
- **1.0%** Native Hawaiian/Pacific Islander

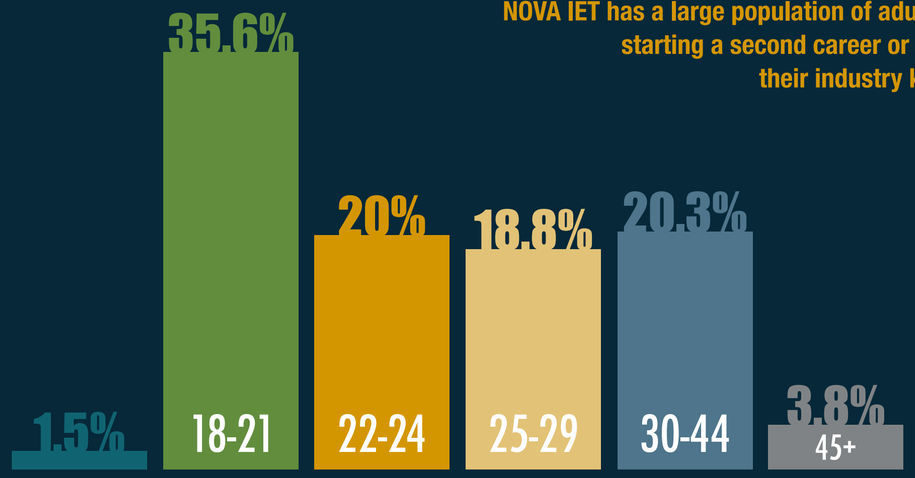
30%
identify as women

69%
identify as men

1%
not specified

Age of Graduates

NOVA IET has a large population of adult learners starting a second career or advancing their industry knowledge



Academic Program Partnerships

NOVA IET plays a significant role in bringing new students to NOVA through our in-demand academic programs. We have also created partnerships through contractual agreements that allow us to guide students directly into industry employment, employee upskilling programs and enhancing the operational readiness of our active duty service members.

These partnerships include organizations like Year Up, a national non-profit that offers young adults skills-based job training that corporate partners are seeking for their talent pool. In partnership with NOVA, Year Up provides students in the program with 100% tuition-free education, support, tools, and resources to succeed, regardless of their background, income, or zip code.

IET manages NOVA's Amazon Career Choice program, which empowers Amazon employees to learn new skills for career success. By partnering with NOVA, Amazon provides education and upskilling opportunities, including pre-paid college tuition, industry certifications designed to lead to in-demand jobs, and foundational skills such as English language, high school diplomas, and GEDs.

IET worked closely with the United States Naval Community College (USNCC) to establish a fully asynchronous cybersecurity degree program. While NOVA already had an online cybersecurity degree, it was adjusted to align with the USNCC and also to support active duty service members deployed globally. Through this partnership, NOVA is positioned to support potentially thousands of the men and women serving our country, increasing their opportunities, both while serving and after leaving service.

yearup

NOVA partners with Year Up to offer a one-year intensive training program that empowers young adults to succeed in professional careers and higher education through professional training and NOVA courses in Engineering Tech, IT, or cybersecurity, finishing the program with a corporate internship. Year Up helps students realize their true potential to gain meaningful employment.

92%

Year Up completers employed or attending school full-time within 4-months of completion

amazon | career choice

NOVA's Amazon Career Choice program, which empowers Amazon employees to learn new skills for career success, provides education and upskilling opportunities, including pre-paid college tuition, industry certifications designed to lead to in-demand jobs, and foundational skills such as English language, high school diplomas, and GEDs after working for Amazon for just 90 days.

171

Active students in Amazon Career Choice in 2022

The US Naval Community College (USNCC) and NOVA IET teamed up to bring our credentialed Associate of Applied Science in Cybersecurity degree to Sailors, Marines, and Coast Guardsmen. Through this groundbreaking program, we are able to provide USNCC-NOVA students with the skills they need to protect our critical infrastructure as active duty service members.

16

Career Studies Certificates (C.S.C.) awarded as well as 1 Associate's Degree (A.A.S.)

Other Partnering Companies

amazon

Commonwealth Cyber Initiative

CACI EVER VIGILANT

intel

Google

IET Student Success
Fandrea Preston

NOVA Northern Virginia Community College > Walmart InfoSec

Fandrea Preston's commitment and perseverance propelled her into a career in cybersecurity.

Fandrea graduated from NOVA's cybersecurity program after making a switch from the nursing program.

She participated in IET's resume and interview prep session, which equipped her with essential skills for interviewing, and boosted her confidence while meeting with potential employers.

Her attendance at a recruitment event led her to being hired by Wal-Mart Infosec.

IET Student Success
Liz White

NOVA Northern Virginia Community College > Google

Elizabeth (Liz) White is determined to be successful in a Data Center Operations career, and she's strategically making all the necessary moves to get there.

Liz is currently pursuing a double major in Engineering Technology, focusing on Data Center Operations, and Information Systems Technology with a specialization in Cloud Computing.

She recently graduated from NOVA IET's Career and Leadership Institute (CLRI) and completed a 10-week internship with AFCOM, an association dedicated to advancing careers in IT and data center management. Additionally, she secured a position at Google as a Data Center Facilities Technician.

IET Student Success
Alec Vaca

NOVA | Northern Virginia Community College > DIGITAL REALTY

Alec Vaca's dedication and drive paved the way for a Data Center Operations career with Digital Realty.

Alec Vaca graduated from NOVA with A.A.S. degrees in both Automotive and Engineering Technology. During his time at NOVA, he successfully completed IET's Career and Leadership Institute (CLRI).

Following a six-week AFCOM internship at Digital Realty, he was hired as a Data Center Operations Engineer 1 in September 2022.

IET Student Success
Albertine Djoumou Nkombou

NOVA | Northern Virginia Community College > DIGITAL REALTY

Albertine made a successful transition from NOVA graduate to industry professional and NOVA adjunct faculty.

Shortly after enrolling in NOVA's Data Center Operations program, she secured a position as a facilities engineer at Digital Realty. Following her graduation from NOVA, she was swiftly hired as a NOVA DCO adjunct professor.

In addition, she's pursuing a master's degree in data center engineering at a university in Belgium while actively supporting women in the IET field.

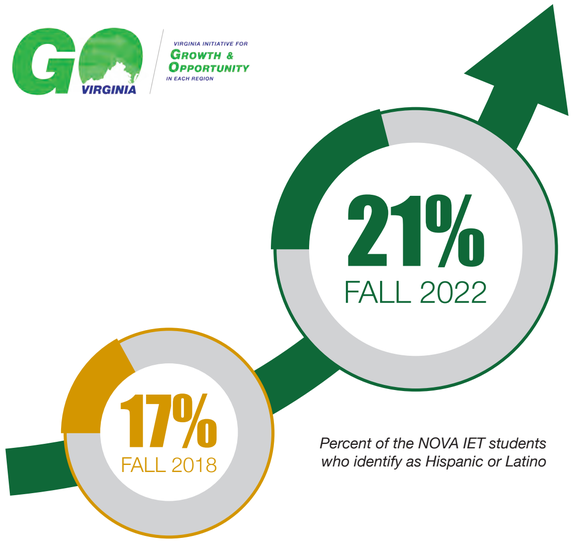
Expanding Access to Our Spanish Speakers

Over 20 percent of NOVA's population is Hispanic/Latino. To better service this population, we translated our NOVA IET program flyers into Spanish, which we launched during Hispanic Heritage Month in October 2022.

For educators, students, and parents, this is a great resource to help Spanish speaking families connect with our IET programs. Flyers have been distributed to all 70 high school counselors in our service region as well as being available on the NOVA IET web page. Translations were made possible through GoVA grant funding.

To continue our efforts of connecting with our Hispanic/Latino population, we are creating spanish content on social media to appeal to current and potential students.

GO VIRGINIA — Virginia Initiative for Growth & Opportunity in each region



Percent of the NOVA IET students who identify as Hispanic or Latino

Information Technology

Engineering Technology

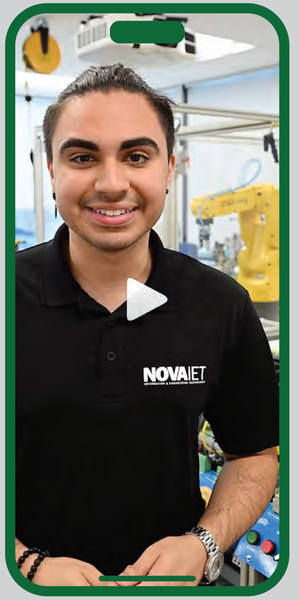
Data Center Operations

Cybersecurity

Computer Science

Cloud Computing

Information Systems Technology



NOVA IET In Spanish On Instagram

70 public schools with Spanish NOVA IET flyer sets in ACPS, APS, FCCPS, FCPS, LCPS, MCPS, MPCS, and PWCS

Launch of NOVA Data Analytics C.S.C.

This year NOVA launched its Data Analytics program through a partnership with the USMC TECOM (Test and Evaluation Command) and what they refer to as Data Intelligence.

Data analytics is the process of examining and analyzing large sets of data to uncover meaningful patterns, insights, and trends. It involves using various techniques and tools to collect, clean, and transform data into a format that can be easily analyzed. Data analytics helps organizations make informed decisions, identify opportunities, solve problems, and improve overall performance. It encompasses a wide range of methods, including statistical analysis, data mining, predictive modeling, machine learning, and data visualization.

The partnership with USMC TECOM established an ‘MOS to Degree’ pathway for marines to be awarded academic credit for their military occupational specialty (MOS) training. NOVA is currently supporting the fifth cohort of marines completing the Intelligence Data Engineers (MOS 2652) course work at our Woodbridge campus. Marines attend classes full-time, completing 33 credits of course work in just 7 months and graduate with a Data Analytics Career Study Certificate (C.S.C.). 42 marines have completed the program for MOS 2652, with most of them receiving multiple academic awards.

This was the spark that ignited the development of the Data Analytics C.S.C., which is now available to NOVA students and prepares them for a rapidly growing career field.

NOVA Students Win Big at SkillsUSA

NOVA's SkillsUSA chapter, funded by a **Federal Perkins Grant,** grew to 46 members in the 2022-2023 academic school year, giving more students the opportunity to showcase their craft by applying classroom knowledge to real-life scenarios in leadership and technical competitions. Guided by NOVA staff and faculty mentors, NOVA students achieved great success at SkillsUSA state and national competitions in 2023.

15 NOVA students competed at the VA State Leadership Conference from April 19-21, **bringing home 13 gold medals** (in Computer Programming, Cybersecurity, Engineering Technology Design, Principles of Engineering, Internet of Things, Related Technical Math, Telecommunications & Cabling, First Aid CPR, and Extemporaneous Speaking) and 2 silver medals (in First Aid CPR and Information Technology Services).

Gold medalists were invited to compete at the National Leadership & Skills Conference (NLSC) in Atlanta from June 19-23. 12 NOVA students competed in 8 different competitions, **producing NOVA's first SkillsUSA national champion** in Internet of Things as well as bringing home silver medals in Extemporaneous Speaking and Cybersecurity, and bronze medals in the Engineering Design team challenge and Principles of Engineering!

46

NOVA SkillsUSA students in 2022-23 Chapter

15 Students at State Championship

12 Students at National Championship

NOVA's Jonatan Solomon Gebremichael (center) wins a gold medal at SkillsUSA Nationals for Internet of Things: Smart Homes

Jonatan Solomon Gebremichael, NOVA Student
National Champion, Internet-of-Things

"I come from poverty. NOVA gave me a chance to go to college when all other colleges declined me and has brought me to the forefront of my dreams, let me be part of a community of people who are also passionate in their field, learning and growing while having fun. SkillsUSA and NOVA provided me with a chance to be great and to be around people that have the same purpose."

Ardian Peach, NOVA Student
National Silver Medalist, Cybersecurity

"There's really something special about being able to compete at nationals against some of the brightest students in the country, and fly home with a medal. We've proven that our skills go far outside the classroom and have real world impact, and I'm proud of that. I've had opportunities at NOVA that I couldn't get at a lot of 4 year institutions, which have definitely put me ahead."

Mahalet Gebremichael, NOVA Student
National Bronze Medalist, Engineering Tech

"NOVA has played a crucial role in my growth by providing opportunities to engage in clubs, attend conferences, and pursue an internship that exposed me to real-world applications of my studies. NOVA's commitment to all students, regardless of their background, is truly remarkable, and Skills USA connects students and provides a platform for collaboration and learning from one another."

Kanykei Korosheva, NOVA SGA President
National Bronze Medalist, Engineering Tech

"SkillsUSA has been an extraordinary journey throughout my college experience, enriching me with invaluable skills and unforgettable memories. The camaraderie and collaborative spirit we fostered as a team were instrumental in our success. The networking aspect of SkillsUSA opened doors to new friendships, mentorship possibilities, and potential career prospects."

22

Medals won by NOVA SkillsUSA students in 2023

State Championship | April 2023 | 13 gold, 2 silver

National Championship | June 2023 | 1 gold, 2 silver, 4 bronze

SkillsUSA®

NOVA Fab Lab Biannual Design Challenge

The NOVA Fab Lab hosted two design challenges in 2022-23 for middle school, high school, and post secondary students. The Fall 2022 challenge was geared toward **fabrication,** while the Spring 2023 challenge was focused on the **design thinking process.**

Fall 2022 Challenge: Fabricate a Science Fiction Prop.
Students were challenged to fabricate a replica of their favorite science fiction prop. As scientists, artists, engineers, and inventors the Fab Lab staff believe the foundation of prop making, especially in science fiction, requires a seamless blend of innovation, problem solving, creativity, and craft.

Spring 2023 Challenge: Upcycling.
Students were challenged to design a product that reuses discarded objects or materials to create a product of usefulness and quality, referred to as Upcycling, for their community. Judges from BAE Systems, Fillagreen, and Northern Virginia Community College selected the winning projects.

59 Project Entries

15 Winning Projects

BAE SYSTEMS
The Design Challenge would not be possible without the financial support of BAE systems.

fillagreen

Jason Armstrong, Fall 2022 first place High School winner for 'Flux Capacitor' replica

Anirudh Holavanahalli and Ajay Penugonda, Spring 2023 Grand Champions for their "Higher Tire" design, fabricated by the NOVA Fab Lab

NOVA Student Feedback

"It was a really fun challenge, it helped me learn about myself and my abilities. It definitely helped me to be more problem-solving."

Bruce Escalante, college division winner

"The design challenge allows you to think out-of-the-box and use techniques that you are getting from school. It's a really good learning experience."

Makayla Draper, 2nd-place college division

"It's an amazing competition that gives you experience on the engineering side and also creativity."

Sunmeet Maheshwarim, 3rd-place college division

Grants & Development

2022-23
Academic Year (AY)

Advancing NOVA through Grant Development and Research

NOVA IET pursues private, federal, and state funding opportunities to develop in-demand pathways for NOVA students.

Research Areas:

- **Information and Engineering Technology pathway development**
- **Makerspaces and Design Thinking**
- **Professional Development (PD) for STEM educators**
- **STEM & CTE Outreach: Improving representation and recruitment**
- **Work-Based Learning: Career preparation and industry internships**

Private Grants
AY 22-23

$500,000+ awarded
for STEM and CTE programs

State/Federal Public Grant Proposals
AY 22-23

$862,710 awarded
through 5 grants (from 8 grants submitted totaling $4.74MM)

Perkins V Awards
AY 22-23

$828,545 managed
Expended 93.3% of Fed FY22
Expended 100% of Reserve Funding

$10.56MM

Total active State and Federal Awards currently managed through AY 22-23
Includes current grants awarded in previous academic years

Becoming the National Model for DCO Education

In July 2023 The National Science Foundation (NSF) awarded NOVA the Data Center Operations Program Development (DCO PD) grant (Award #2300978) through its Advanced Technological Education (ATE) program. The goal of the grant is to raise awareness for the national need for data center operations education and to increase capacity for DCO education at community colleges and technical colleges around the nation. This project consists of 3 primary components:

An Awareness and Recruitment Campaign for DCO educators through ACTE's national conferences, including project presentations, data center site visits, and hands-on skills workshops.

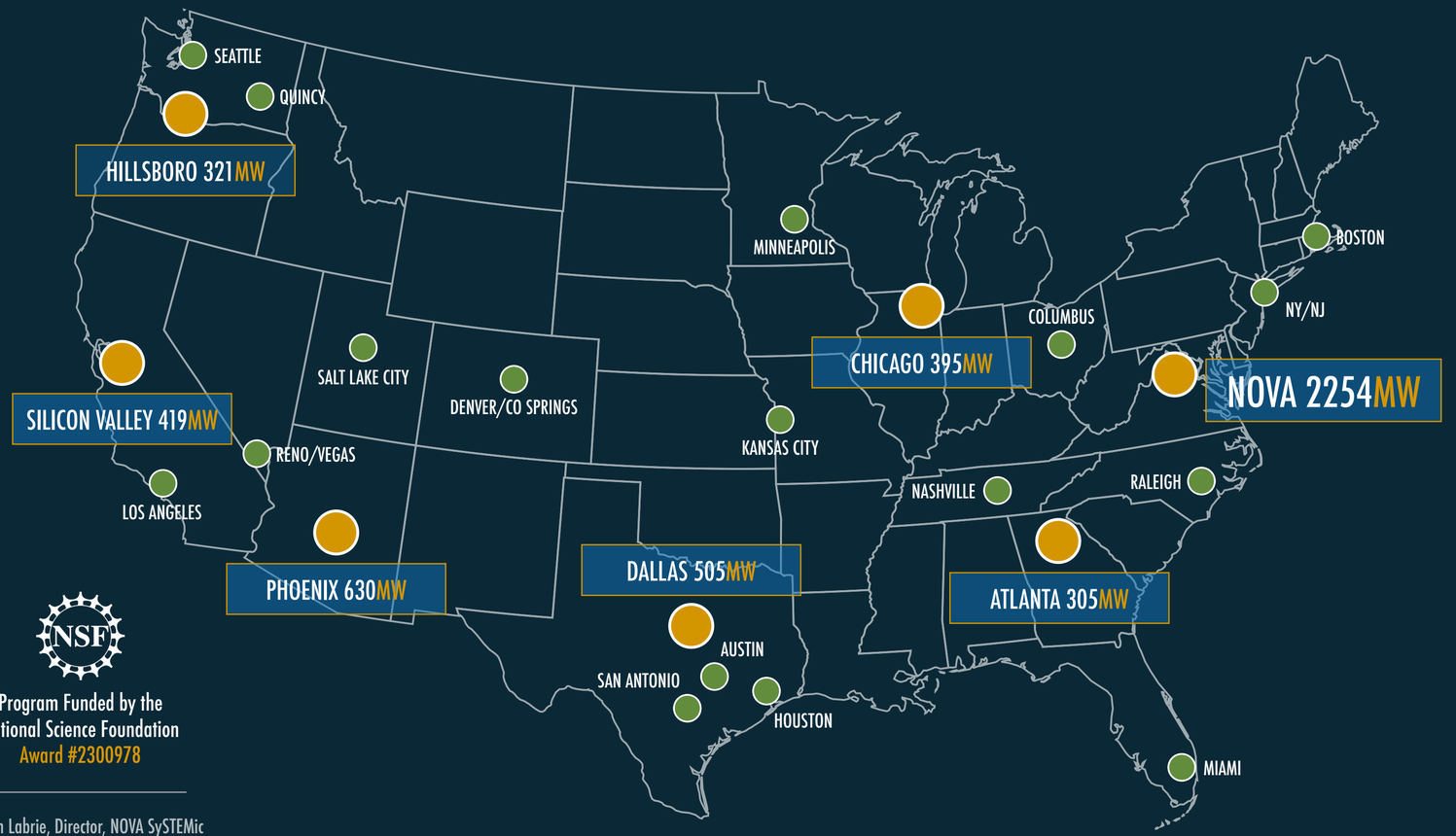
A DCO Professional Learning Fellowship for educators including a three-day workshop series at NOVA's upcoming data center training facility on the Woodbridge campus and a five-day externship at an operational data center.

A Data Center Education Digital Resource Hub serving as a repository of curriculum, industry contacts, career information, and a map of growing data center markets.

ACTE · Aligned Adaptive Data Centers · Google · aws · STACK INFRASTRUCTURE · CORESITE A CARLYLE COMPANY · EQUINIX · VANTAGE DATA CENTERS · DATA CENTER COALITION

U.S. Data Center Colocation Markets 2022-23

Northern Virginia is the largest data center market in the world



NSF
Program Funded by the National Science Foundation
Award #2300978

PI: Josh Labrie, Director, NOVA SySTEMic
jlabrie@nvcc.edu

Co-PI: TJ Ciccone, NOVA DCO Faculty
tciccone@nvcc.edu

Co-PI: Albertine Djoumou Nkombou, NOVA DCO Faculty
adjoumounkombou@nvcc.edu

CBRE | Data Center market information from CBRE's North America Data Center Trends H1 2023

PRIMARY DATA CENTER MARKETS
SECONDARY/TERTIARY DATA CENTER MARKETS
MW MEGAWATTS

NOVA Awarded WIOA Grants

Through an open and competitive bid process, NOVA was awarded 3 workforce grants from the Governor's federal Workforce Innovation and Opportunity Act (WIOA) Title 1 funds.

The **Youth Outreach and Marketing** and **Transportation to Learn** awards build on NOVA's work to provide students opportunities to explore high-wage and in-demand careers in **Engineering Technology** fields. Industry demand for talent to produce semiconductors and maintain data centers in northern Virginia require additional investments to raise student and educator awareness for these critical fields. Through a summer bridge program that integrates industry site visits and hands-on technical skills, students will explore NOVA's engineering technology programs and the careers they lead to.

The **Supplemental Workforce Development Training Opportunity** award will provide students experiential learning in **Information Technology** fields. The project builds on successful internships at public and private IT employers over the last two-years. The program includes career and leadership preparation workshops with industry partners, and provides funding for 25 IT internships in the summer of 2024.

	WIOA Funded	Local Match
Youth Outreach and Marketing	$24,962.11 (62%)	$15,494.82 (38%)
Transportation to Learn	$24,998.00 (66%)	$12,684.00 (34%)
Supplemental Workforce Development Training Opportunity	$147,866.00 (67%)	$74,402.00 (33%)

Total Funding

$300,406.93

Teaching the Power of Design Thinking to Educators

The 2023 Design Thinking Fellowship taught 12 middle and high school teachers, informal STEM educators, and college faculty the fundamentals of design thinking to implement in their present and future instruction. Educators completed a 5-day Professional Learning (PL) Institute where they created design thinking classroom activities and taught a 1-week NOVA summer STEM camp.

During the fellowship, participants focused on the core steps of the design thinking process: **empathize, define, ideate, protype,** and **test**. Working in groups of 3, educators delivered a design thinking lesson or activity. Some used a modified version of the LEGO challenge taught in the PL sessions, while others created their own project. Fellows then put their knowledge into practice by teaching NOVA SySTEMic's digital fabrication summer camps.

Finally, fellows brought design thinking back to their classrooms and submitted curriculum to be used by other educators, which the NOVA Fab Lab shares publically in their online resource hub.

The Makers By Design (MBD) fellowship, funded by an NSF Grant, looks to strengthen engineering technology pathways by providing professional learning to educators and seeks to create a community of practice among educators involved in makerspaces.

Program Funded by the
National Science Foundation
Award #2055324

12

2023 MBD Fellows

4 post-secondary teachers
4 High School teachers
3 Middle School teachers
1 librarian

79

Students instructed in Design Thinking by MBD fellows across 4 STEM camps

"I welcomed the element of design thinking to engage with others, to practice empathy, and that my students would be allowed to fail without failing, that while practicing design thinking and coming up with solutions, they will recognize the need for reiteration. The fabrication process allows students to maximize the resources they have - skills, materials and time, and the undeniable satisfaction of holding a concrete solution to a problem in one's hands."

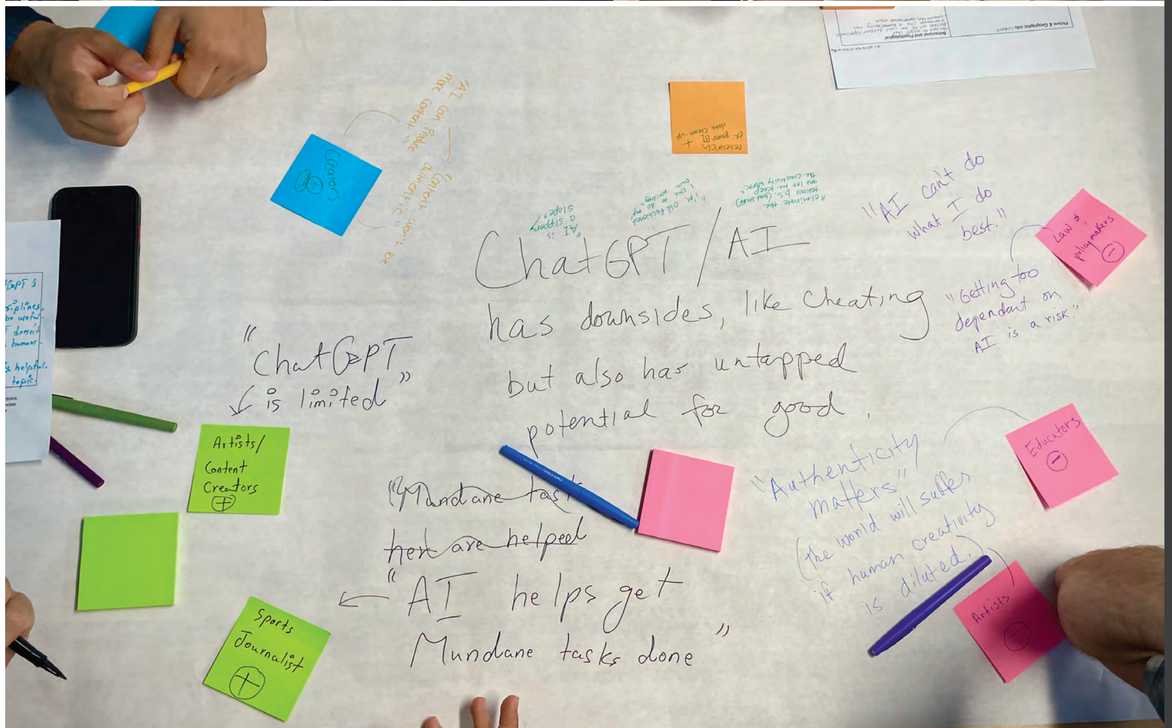
Elena Ziu, MBD Fellow

NOVA Students Complete First Product Design Incubator

From April though June 2023, the first cohort of Product Design Incubator (PDI) students were trained at the Fab Lab. PDI is a project designed to train groups of community college students through a product design challenge and is funded by a grant from the National Science Foundation (NSF). PDI integrates entrepreneurship training and design thinking to guide students from initial ideation through the prototyping and pitch processes to support groups in designing a product.

NOVA students were divided into 2 teams and encouraged to employ design thinking principles to identify and eventually solve a real world problem. Both teams developed digital solutions as their products. At the capstone pitch event, both teams enhanced connections and interpersonal skills by networking with over 50 industry leaders and delivering formal 10-minute product pitches. Students ended the program with defined student connections and preliminary relationships with industry professionals.

PDI completer Isaiah Harris said “PDI is a great opportunity because it puts you in contact with people in the industry and allows you to learn many different skills from business, to marketing, to product design and creative thinking. It allows you to work as a team and help you figure out what your strengths are and how to improve upon your weaknesses.”



9

NOVA students completed 1st cohort

55

industry professionals attended Pitch Meeting and Networking Event. 7 Industry speakers delivered workshops.

Program Funded by the National Science Foundation
Award #2202184

PI: Richard Sewell, NOVA Fab Lab Coordinator
rsewell@nvcc.edu

Co-PI: Paula Ford, Dean Information and Engineering Technologies
paula.ford@nvcc.edu

Co-PI: Cameisha Chin, Associate Professor of Business Administration
cchin@nvcc.edu

Spotlight on CTE: Promo Videos for NOVA's Medical Education Programs

As a part of NOVA's Perkins V funding, NOVA has been producing a series of videos focused on marketing career and technology education (CTE) programs at the college. The project, started in 2018, focuses on high-wage, in-demand CTE fields.

This year, NOVA IET produced three videos to highlight:
1) An overview of Programs offered at NOVA MEC
2) NOVA's Emergency Medical Services (EMS) Program
3) NOVA's Nursing Program

The Medical Education Campus (MEC) is a technologically sophisticated specialized campus dedicated to the education and preparation of Nursing and Health Science professionals with a strong commitment to workforce development and continuing education.

The Virginia Board of Nursing has recently approved NOVA to launch a 1-year full-time Licensed Practical Nursing Program. This is designed for current Virginia CNAs to continue their healthcare training through intensive credential stacking and rigorous Practical Nurse education to open employment opportunities in the healthcare field.

NOVA MEC OVERVIEW

NOVA MEC EMS

NOVA MEC NURSING

Outreach & Recruitment

Early College Exposure on Alexandria Campus

Over the course of a week in April 2023, we welcomed Francis C. Hammond Middle School's 8th grade class to NOVA's Alexandria Campus as part of GEAR UP's Early College Exposure Grant, funded by the State Council of Higher Education for Virginia (SCHEV) and Virginia Department of Education (VDOE).

College access services can close gaps in college enrollment for low-income families. Students who participate in campus visits, college-going workshops, and financial aid counseling are more likely to enroll in college than similarly economically disadvantaged students who did not receive college access services.

In efforts to put this research into practice, we held 5 sessions with 495 8th graders and 50 faculty/staff members. Students received an overview about NOVA, went on a campus tour, and learned about NOVA IET degree and outreach programs.

GEAR UP VIRGINIA

STATE COUNCIL OF HIGHER EDUCATION FOR VIRGINIA

495

8th graders learned about IET at NOVA

"Thank you for providing an opportunity for 8th grade students to learn about STEM. The students enjoyed learning information about NOVA. Some of our students shared that they want to pursue STEM in high school. We appreciate everything that was done to make the trip a success."

Kanika Dorsey
8th Grade Academic Principal at Hammond

Summer STEM Camps with Intern Instructors

Led by STEM teachers and college students enrolled in STEM programs, our STEM Camps provide students from 4th to 12th grade the opportunity to explore and engage in a variety of STEM topics, such as **Coding, Robotics, Cybersecurity, Fabrication, Rocketry, Arduino, STEM ES** and **STEM MS.**

Camps utilize hands-on, project-based learning to develop skills at an early age with the goal of engaging them in STEM and ultimately a career to build regional northern Virginia's capacity for STEM.

A key component of the summer camp program is leveraging the opportunity to engage educators in professional learning and to provide secondary and post-secondary students the opportunity to explore education as a career. In 2023, 52 qualified college and high school students supported STEM camp instruction and logistics.

Increasing underrepresented minorities' (URM) participation in STEM is essential to meeting the workforce needs in these critical fields. Over $17,000 in scholarships for URM and low income was awarded to campers. Overall, 34% of our students identified as Hispanic or Black, and 46% of STEM interns were female.

Micron · Loudoun County Public Schools Est 1870 — Engage · Empower · Enrich · NSF · Google · Boys & Girls Clubs of America

505
camp registrations
34% URM* | 25% Female

26
camp sessions at
4 NOVA campuses and
1 LCPS High School

52
interns hired to teach
from 464 applicants

$17,325
provided by NOVA for
camp scholarships

*Underrepresented Minority

High School Students Explore NOVA IET's Career Pathways

Our inaugural **NOVA IET Career Days** hosted over 400 high school students from all over northern Virginia. Career Days are geared toward bringing students to a NOVA campus and informing them about in-demand technology education and career pathways as well as connecting them with industry professionals.

Career Day events featured presentations and panel discussions by industry experts, including representatives from **Google, AWS, Johnson Controls, Leidos, CBRE, QTS, Digital Realty, Deletek,** and **NOVA,** covering a range of topics such as cybersecurity, cloud computing, data center operations, and computer science. Students also toured the particular NOVA campus they were visiting for Career Day at Alexandria, Annandale, Loudoun, Manassas, or Woodbridge. Overall, the events successfully showcased NOVA's commitment to supporting students and professionals in IET fields.

400+

HS students attended a Career Day at a NOVA campus

Google | CompuDynamics™ UPTIME IN NO TIME

My students and I had a great time. It was a great opportunity to hear from a diverse group of professionals about their career journeys, and I have already heard from a few students who got excited about studying computing/IT/security, and about opportunities at NOVA. My students seemed to especially enjoy the tour, and the tour guide did a fantastic job of getting them excited about the facilities and resources at NOVA.

Chris Jones
Counselor, Wakefield High School

Bridge Programs

This summer, NOVA IET conducted a summer bridge program in 2 tracks for rising and graduating high school students interested in pursuing further education in an IET discipline. The goal of the bridge program is to raise awareness for IET pathways to high-wage and in-demand careers.

All sessions toured 2 NOVA campuses, and NOVA staff from student and academic support offices engaged students while completing a 1-credit student development course. Sessions focused on using hands-on projects and skills training to distinguish between career fields and educational pathways. 4 NOVA campuses hosted program sessions with transportation provided between campuses and to industry tours.

The first track focused on **Engineering Technology (ET) and Data Center Operations (DCO).** In the 2-week program, students completed OSHA 10 training, used pneumatic trainers, programmable logic controllers, ladder logic and industrial control, spent two days onsite at a Stack Infrastructure Data Center and toured Micron Technology.

The second track focused on **Information Technology (IT) and Computer Science (CS).** Students assembled a desktop computer, trained a simple generative AI, and conducted cybersecurity exercises in the Virginia Cyber Range.

National Science Foundation
Award #2055717

GO VIRGINIA — Virginia Initiative for Growth & Opportunity in each region

Micron · STACK INFRASTRUCTURE · Google

Summer bridge programs are funded by 3 grants: NSF DCO Tech, GOVA DEEP IET, and Tech Talent Investment Program (TTIP), which made it possible for students to complete the bridge program at no cost to them.

211

applications received
for 80 openings

60

HS Senior (36) and Junior (24) completers

30 ET/DCO students
83% URM* | 40% Female

30 IT/CS students
80% URM* | 37% Female

14

Bridge completers enrolled at NOVA F23

9 IT students | 5 ET students

*Underrepresented Minority

Indigenous Students Take on Cyber Challenge at NOVA

In July, NOVA hosted ‘Natives Rising’ indigenous STEM camp students at the Woodbridge campus cybersecurity labs, bringing together 35 Native American High School students (alongside 6 college students, faculty, and leaders) that together represented 21 different tribes from 15 states.

‘Natives Rising’ seeks to improve visibility and economic opportunity for Native Americans in the technology industry. During their day at NOVA, students participated in an advanced ‘capture the flag’ cyber challenge with guidance from NOVA faculty and staff.

Working with community partners such as ‘Natives Rising’ supports our core value to welcome, support, and engage diverse populations and perspectives so that we help cultivate a sense of belonging and equip them for in-demand technology careers.

STEM Camp participants were surveyed after the cyber challenge and asked “How likely are you to pursue a college major related to technology?” The percentage of female high school students that answered “Strongly Agree” went from 0% at the beginning of the camp to 28% post-camp.

NATIVES RISING

joinnativesrising.com

35

indigenous HS students at NOVA for cyber challenge

21

different tribes represented

6

college students, faculty, and leaders involved in NOVA visit

Work-Based Learning

Career and Leadership Readiness Institute

NOVA IET's Career and Leadership Readiness Institute (CLRI) returned with a bang, offering it's first in-person sessions in Fall 2022 and Spring 2023.

The in-person component strongly expanded CLRI's appeal as a premier professional development program and provided NOVA students with an opportunity to enhance their knowledge and skills to become more competitive job candidates for internships, jobs, and career pursuits. 48 IET students completed the program in AY 2022-23 and received priority consideration for paid summer internships, with 12 students accepting internship positions after completing the CLRI.

The 5-week program included professional development workshops led by industry leaders, a team project, and a capstone Executive Mentoring and Networking Event, where students were able to interact directly with 11 regional companies including Microsoft, Coresite, Iron Mountain Data Centers, HRTech, Simple Technology Solutions, Cytalks, AWS, Lockheed Martin, Google, PWCS, STACK Infrastructure, and Red River.

National Science Foundation
Award #2134583 and Award #2055717

CLRI helped me to get professional skills, to meet people, to make connections, to build my network. I really learned how to rebrand my resumé to attract hiring managers.

Kanyin
NOVA Information Technology Major

48
student completers
22 Fall 2022 | 26 Spring 2023

12
accepted internships directly from CLRI

8
CLRI graduates offered full-time jobs after internship

11
leading industry partner companies

Creating Student Career Advancement Through Internships with Industry

From Winter 2022 to Summer 2023, NOVA IET provided interns for 6 industry and educational partners, including **Digital Realty, CyTalks, Fairfax County DIT, Prince William Country Schools, AFCOM,** and **Micron.**

Early internship experiences are strongly linked to improved career outcomes, such as an increased likelihood to graduate, receiving a full-time job offer, and earning professional certifications.

This year NOVA IET helped meet the demand of the technology workforce in northern Virginia by fostering a succesful program that connected 87 NOVA students with industry through 91 internships, all made possible through an NSF SuperPL Grant and a DEEP IET GoVA Grant.

91

Interships provided to 6 organizations

22 PWCS | 21 Digital Realty | 16 AFCOM
16 Micron | 9 CyTalks | 6 FFX County DIT

National Science Foundation
Award #2134583

$283K
of funded internships

24,086
total intern hrs worked

"You've got to experience it to find out how great of an environment it is. It was insightful seeing how much freedom they gave us interns as to which projects we could choose but also in managing and creating these projects."

Maseeh Lalee, CyTalks Intern

"I interviewed with multiple organizations and was offered a position at each one. I will return to my studies while working full-time with Google. I am so grateful for all that IET, CLRI, and AFCOM has provided for me along this journey."

Liz White, AFCOM Intern

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