

Federal Technology Symposium

Building Tomorrow's Force: Cultivating Talent for the Defense Industry

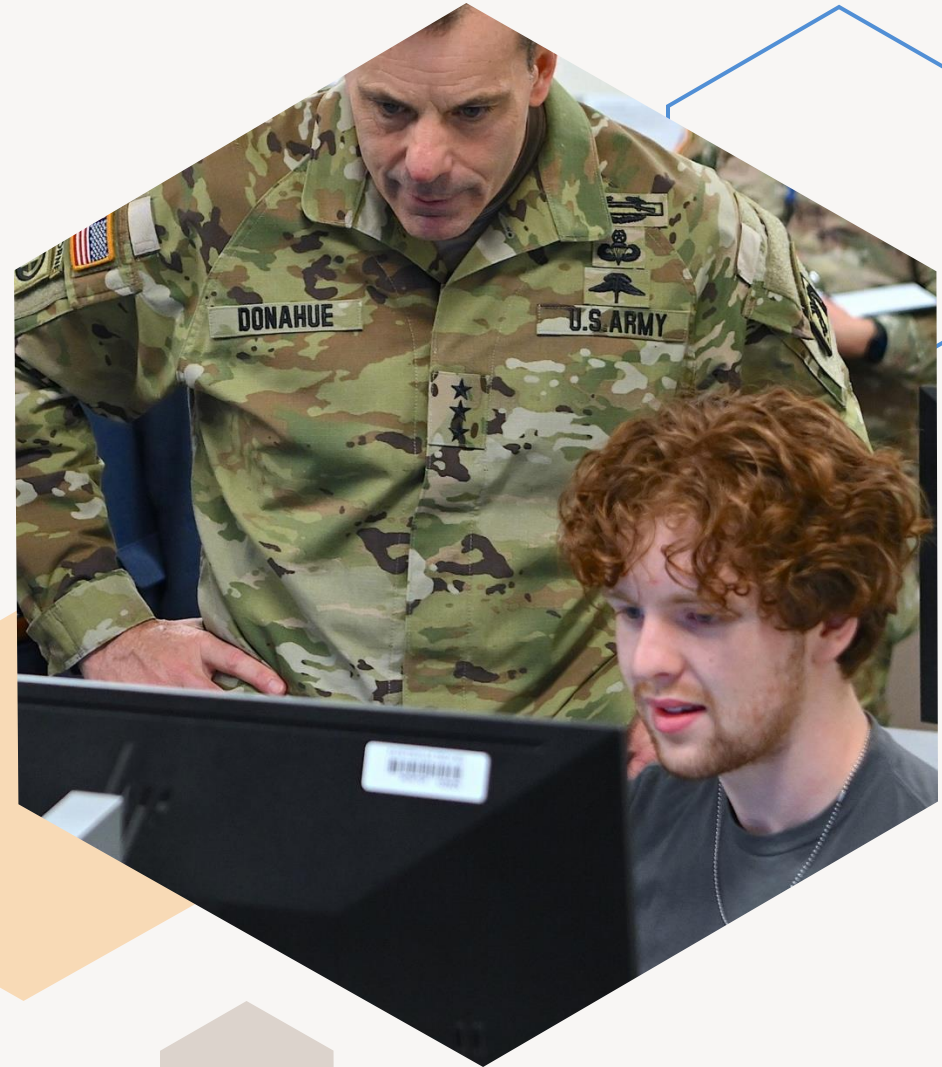
Speakers:

- **Rhiannon Holley**, Department Chair, Systems Security & Analysis, Fayetteville Technical Community College
- Chris Crumbly, Executive Director, Institute for Digital Enterprise Advancement (IDEA)
- Dr. Sherine Obare, Vice Chancellor for Research and Engagement, University of North Carolina – Greensboro
- Gregory P. Copenhaver, PhD, Chancellor's Eminent Professor of Convergent Science, and Director, Institute for Convergent Science, University of North Carolina at Chapel Hill

Building Tomorrow's Force:

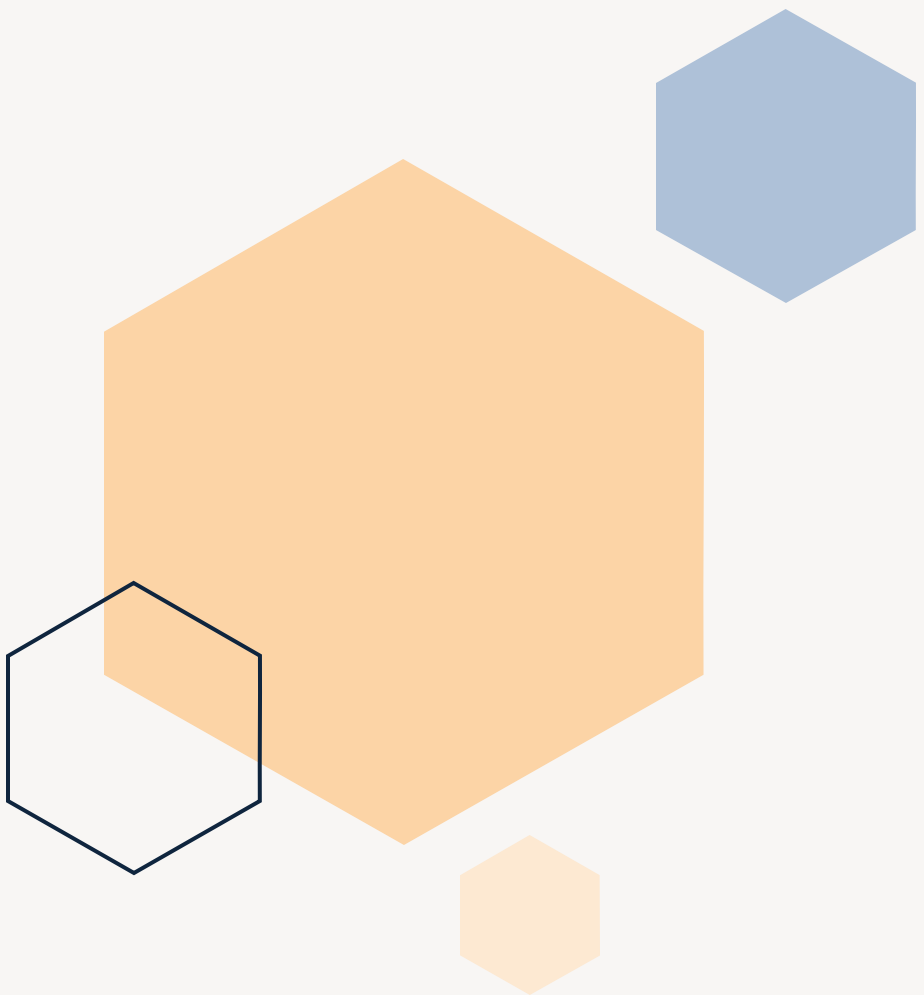
Cultivating Talent for the Defense Industry

Rhiannon Holley, Department Chair, Cybersecurity
Military-connected Educator | Future-Force Shaper
Fayetteville Technical Community College



Cybersecurity at FTCC Workforce Ready.

- National Center of Academic Excellence in Cyber Defense
- 300-350 students actively enrolled per semester.
- **Curriculum focus:**
 - Hands-on, practical training through industry partnerships — 1,100+ applied hours
 - DoD Cyber Workforce Framework (DCWF/8140) aligned
- 55–61% of students are active duty, veterans, or dependents

A decorative graphic on the left side of the slide featuring four hexagons. One is a large orange hexagon in the center. To its top right is a smaller blue hexagon. To its bottom left is a white hexagon with a dark blue outline. At the bottom center is a small light orange hexagon.

**“The task of the
modern educator is not
to cut down jungles but
to irrigate deserts”**

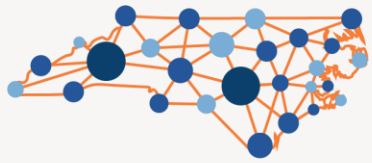
C.S. Lewis

Creating Opportunities

Shortage of 230,000 STEM jobs...82% of defense employers have difficulty finding qualified talent. *Source: Jobs with DoD, Defense industry career outlook: Mid-year 2025 (2025)*

FTCC Cybersecurity helps close this gap by preparing defense-ready graduates.





**CAROLINA
CYBER
NETWORK**

Developing Talent | Protecting Our Future

"Cybersecurity is one of our state's top priorities, and the Carolina Cyber Network is an outstanding partner in our efforts to nurture cyber talent and strengthen our cyber defense capabilities." – NCDIT Secretary Teena Piccione.



JULY 15, 2025

NCDIT Launches a New Cybersecurity Internship Program with Carolina Cyber Network and Fayetteville Technical Community College

Positions will give interns real-world experience in various aspects of cybersecurity and information technology.





Thank you!

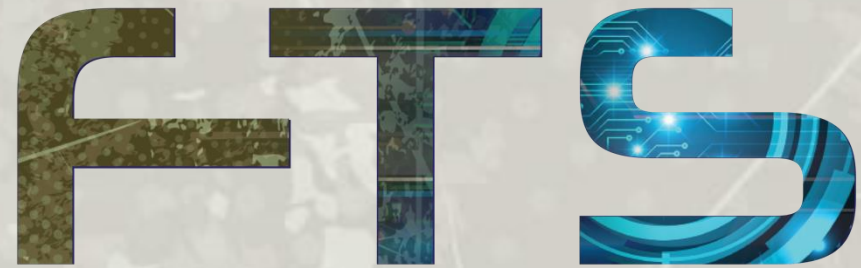
Rhiannon Holley

holleyr@faytechcc.edu

(910) 486-7309

Connect on LinkedIn:





Federal Technology Symposium

Building Tomorrow's Force: Cultivating Talent for the Defense Industry

Speakers:

- Rhiannon Holley, Department Chair, Systems Security & Analysis, Fayetteville Technical Community College
- **Chris Crumbly**, Executive Director, Institute for Digital Enterprise Advancement (IDEA)
- Dr. Sherine Obare, Vice Chancellor for Research and Engagement, University of North Carolina – Greensboro
- Gregory P. Copenhaver, PhD, Chancellor's Eminent Professor of Convergent Science, and Director, Institute for Convergent Science, University of North Carolina at Chapel Hill

What is MBSE?: Model-Based Systems Engineering (MBSE) is the use of digital models to support the design, development, analysis, and management of complex systems.



Professional Education/Workforce Development

CLOUD-BASED TOOLS

**COMPUTER-
BASED
TRAINING**

**INSTRUCTOR-
LED TRAINING**

DIGITALWERX TV WEBCASTS
(YOUTUBE.COM)



DIGITALWERX URL

Digital Systems Models:

1. Delete SRDs
2. Delete FRDs
3. Delete ICDs
4. Delete V&V Plans
5. Delete SDDs
6. Delete CONOPS
7. Shortens the DDT&E Lifecycle



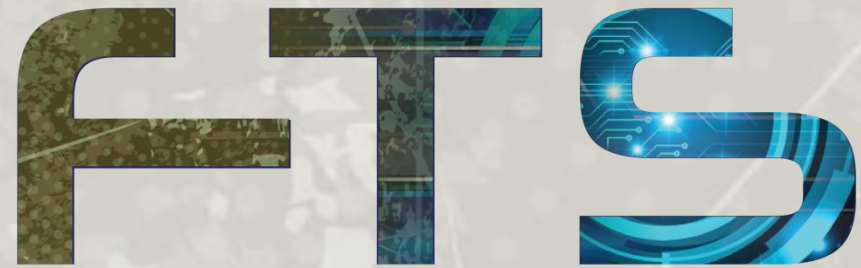
Academic Education/Workforce Development

*Associate Degree in Systems
Engineering Technology (SET)*

*University Electives & Certificates
in MBSE*

CTE and Skill-bridge Certificates

Apprenticeships and WBL



Federal Technology Symposium

Building Tomorrow's Force: Cultivating Talent for the Defense Industry

Speakers:

- Rhiannon Holley, Department Chair, Systems Security & Analysis, Fayetteville Technical Community College
- Chris Crumbly, Executive Director, Institute for Digital Enterprise Advancement (IDEA)
- **Dr. Sherine Obare**, Vice Chancellor for Research and Engagement, University of North Carolina – Greensboro
- Gregory P. Copenhaver, PhD, Chancellor's Eminent Professor of Convergent Science, and Director, Institute for Convergent Science, University of North Carolina at Chapel Hill

Building Tomorrow's Science and Technology Workforce for the Defense Industry



Institute for the Convergence of Optimized Methods
for Military Advances & National Defense

UNC GREENSBORO

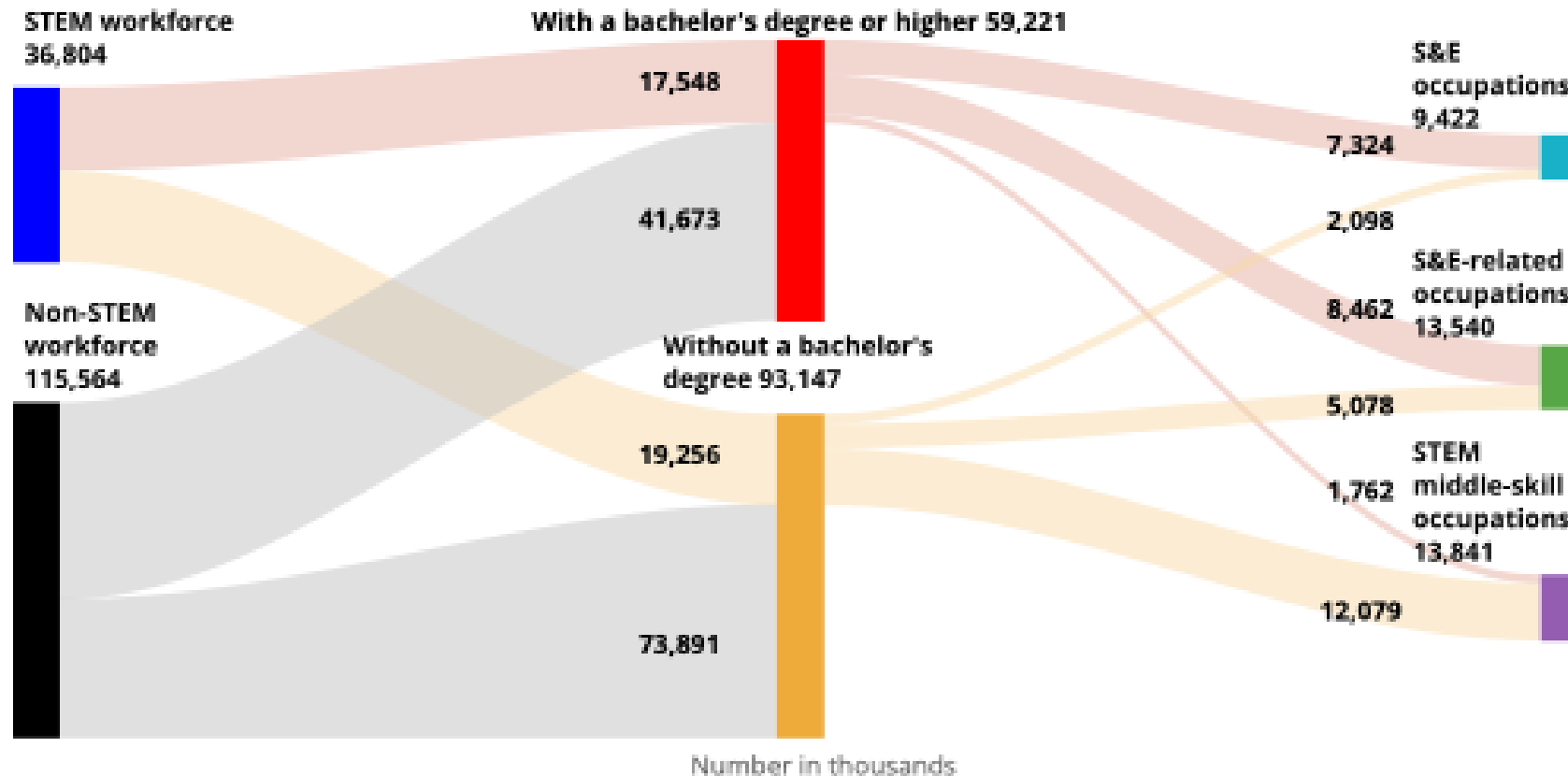
Sherine O. Obare, PhD
Vice Chancellor for Research and Engagement
University of North Carolina at Greensboro



UNC
GREENSBORO

Research and Engagement

Understanding the Need



Source(s):
Census Bureau, American Community Survey (ACS), 2021, 1-Year Public-Use File, data as of 25 October 2022.

Defense Science, Technology and Security through the UNCG Institute for the Convergence of Optimizing Methods for Military Advances and National Defense (COMMAND)

#1
Largest Military Base in
the World at Fort Bragg

20K
Active Military become
Civilian workers
Annually

Large number of
companies that support
defense



UNCG



Developing Experts for National Defense Research and Innovation



Smart Sensor
Technologies



Advanced
Manufacturing



Defense Science and
Technology



Holistic Health and
Fitness

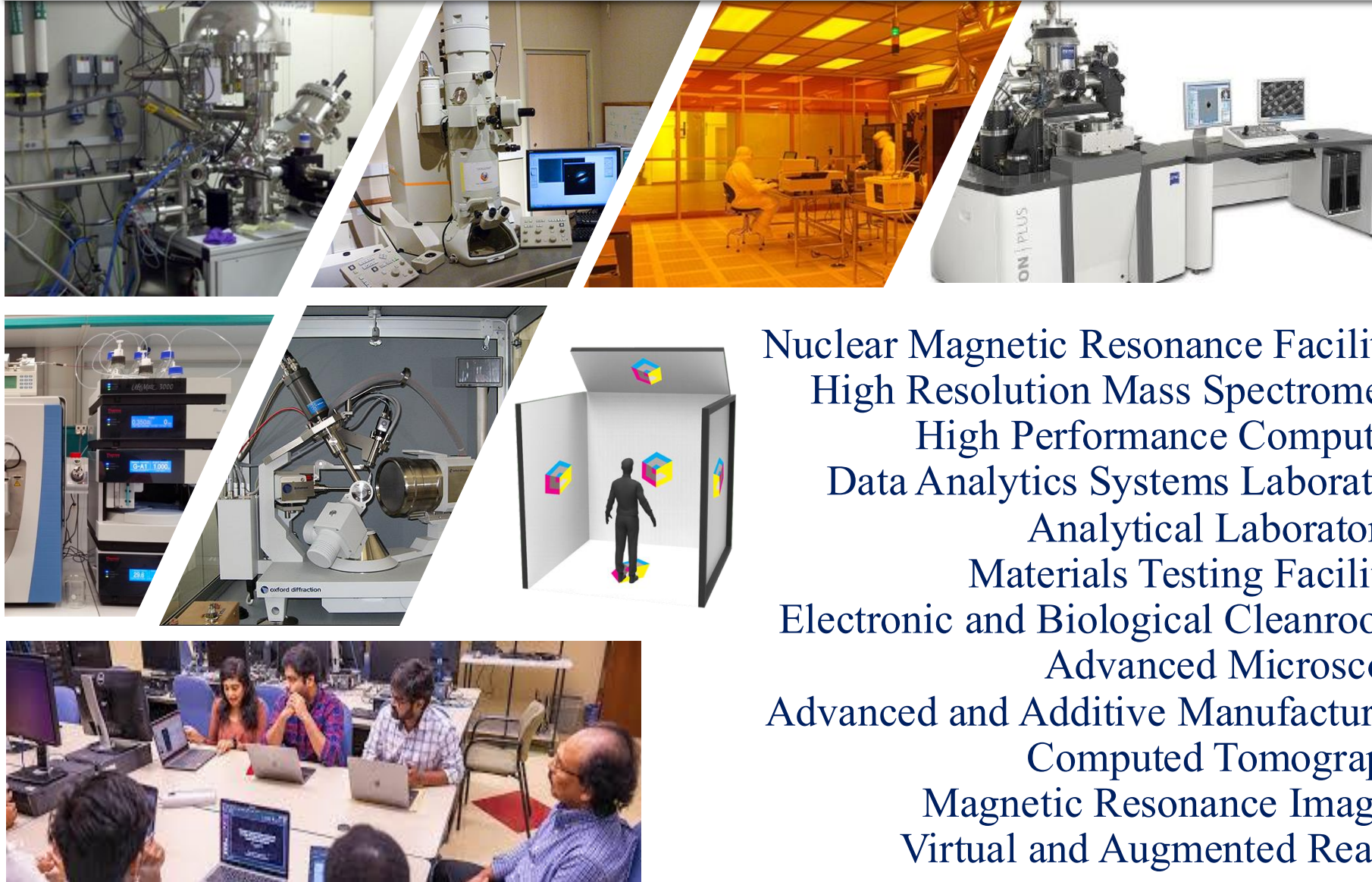


Materials for Extreme
Environments



Family Support and
Workforce Development

Key Features and Opportunities: Research Facilities



Nuclear Magnetic Resonance Facilities
High Resolution Mass Spectrometry
High Performance Computing
Data Analytics Systems Laboratory
Analytical Laboratories
Materials Testing Facilities
Electronic and Biological Cleanrooms
Advanced Microscopy
Advanced and Additive Manufacturing
Computed Tomography
Magnetic Resonance Imaging
Virtual and Augmented Reality

Direct Partnership with Manufacturing Innovation Institutes

The initial partnership centered on using synthetic biology to inspire the next generation of skilled bioindustrial manufacturing workforce.

Initial partnership included training participants through hands-on experiences with cutting-edge analytical tools such as electron microscopes and hand-held mobile DNA sequencers.

Expansion includes a partnership where BioMADE visits North Carolina to provide direct training to veterans and their families.

- BioMADE awards \$1,000 participants
- UNCG opens further opportunities to participants to ensure transition into the biotechnology workforce.



Defense Research Experience and Mentored Career Exploration (DREaM) Scholars

1. Promote awareness of student participants in defense-related research/careers in Materials science through a Defense Research Experience and Mentored Career Exploration.
2. Prepare students for the Bioindustrial manufacturing sector by developing awareness of career opportunities in biotechnology.
3. Increase the number of students who apply to the DoD SMART scholarship program.

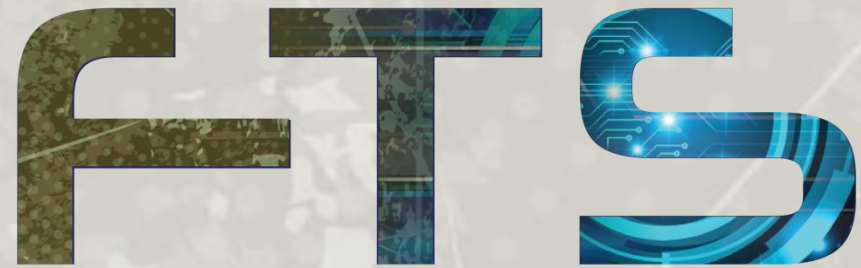


Scholarship
Stipend
Internship
Career



Research, Scholarship and Creative Activity





Federal Technology Symposium

Building Tomorrow's Force: Cultivating Talent for the Defense Industry

Speakers:

- Rhiannon Holley, Department Chair, Systems Security & Analysis, Fayetteville Technical Community College
- Chris Crumbly, Executive Director, Institute for Digital Enterprise Advancement (IDEA)
- Dr. Sherine Obare, Vice Chancellor for Research and Engagement, University of North Carolina – Greensboro
- **Gregory P. Copenhaver**, PhD, Chancellor's Eminent Professor of Convergent Science, and Director, Institute for Convergent Science, University of North Carolina at Chapel Hill



Institute for Convergent Science

A Unit of Innovate Carolina

Federal Technology Symposium

Gregory P. Copenhaver

September 10, 2025

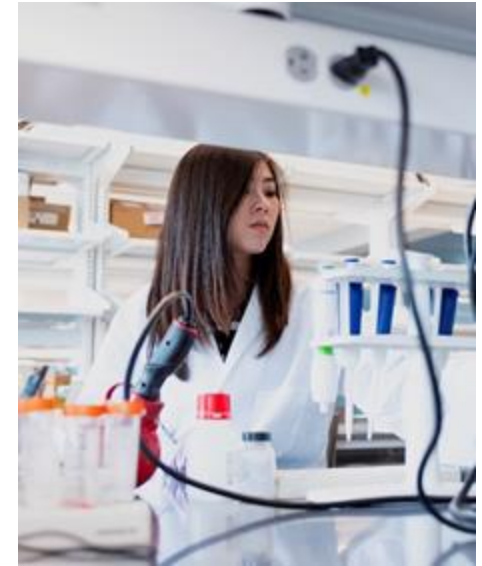
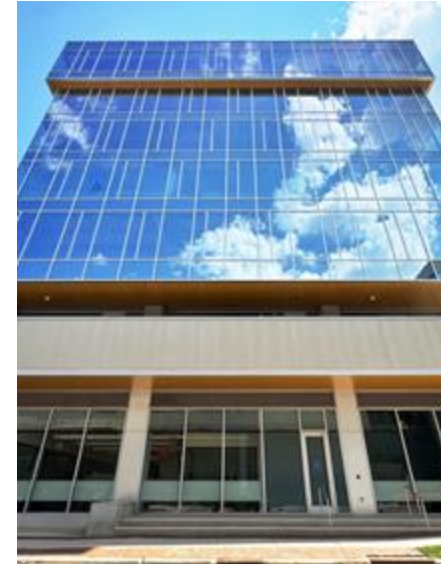
Who We Are

We empower Carolina innovators to thrive.

Innovate Carolina connects, guides and amplifies the people and ideas driving innovation at UNC-Chapel Hill so more of them progress from concept to real-world impact.

Our mission? To **equip UNC-Chapel Hill and its partners with the tools, talent and connections to move ideas into action**, and action into impact.

We activate a comprehensive innovation pipeline powered by the University's research excellence, expert talent and real-world partnerships – **helping innovators thrive and deliver measurable outcomes** that nudge the world toward its human and economic potential.



UNC Innovation Impact Strategic Framework

Ensuring UNC’s innovation serves the greater good, driving economic resilience.

Our vision is to create a campus, community and culture where every idea with potential thrives for the public good.

Our promise? To empower Carolina innovators to thrive. The UNC Innovation Impact Framework is building our innovation future through five key focus areas.

Learn more



B	S	E	E	N
BUILD	SUPPORT	ELEVATE	ENGAGE	NURTURE
 Develop UNC Innovation Excellence Pipeline	 Enhance Resource Allocation and Support for Innovation	 Champion and Recognize Innovation Impact	 Open and Connect Pathways in the UNC Innovation Ecosystem	 Promote Innovation for the Public Good and Foster Rapid Prototyping Culture

“All-Many-Few” Model

Foundation—Three Phases: Innovation and Entrepreneurship at UNC



ALL

1

**Innovation and
Entrepreneurial
Awareness**

*Professional Skills: Networking,
Collaboration, Communication, etc.*

MANY

2

**Innovation and
Entrepreneurial
Mindset**

*Creativity/Curiosity, Design
Thinking, Systems Thinking*

FEW

3

**Innovation and
Entrepreneurial
Intention**

*Intention to Create a Venture,
Product, or Service*

Activation: UNC I&E Lifecycle

I

**Problem
Identification**

II

**Solution
Development**

III

**Entrepreneurial
Skill / Feasibility
Assessment**

IV

Go / No Go

V

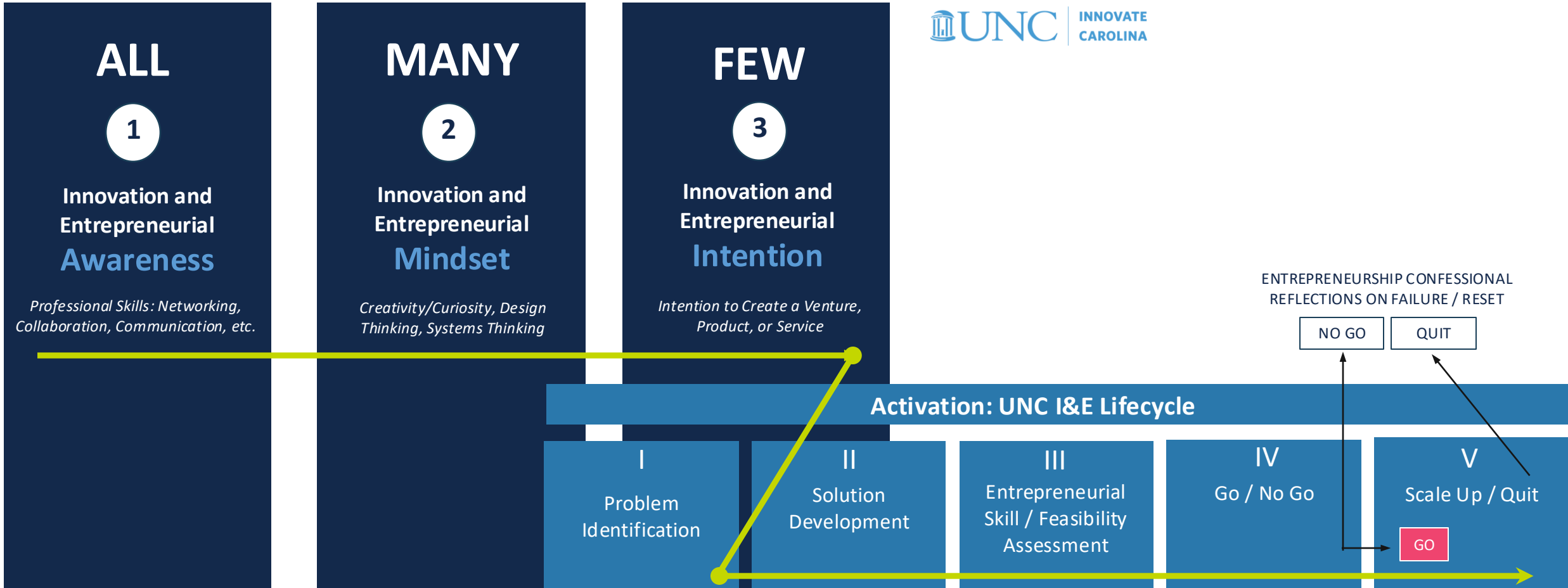
Scale Up / Quit

NO GO

QUIT

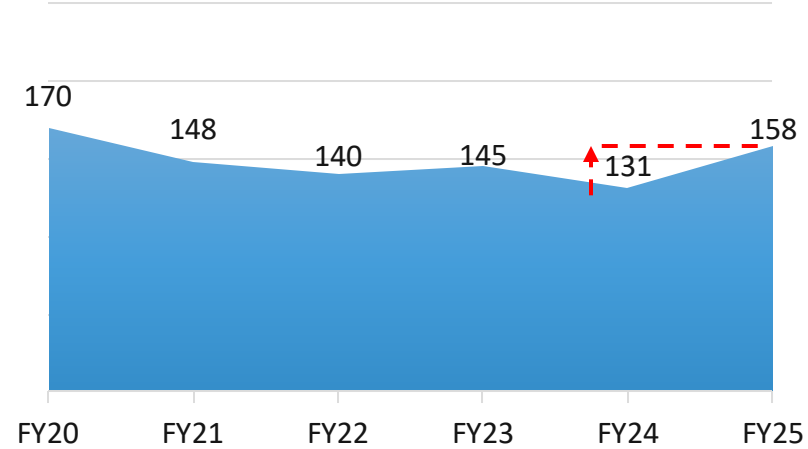
GO

ENTREPRENEURSHIP CONFESSIONAL
REFLECTIONS ON FAILURE / RESET



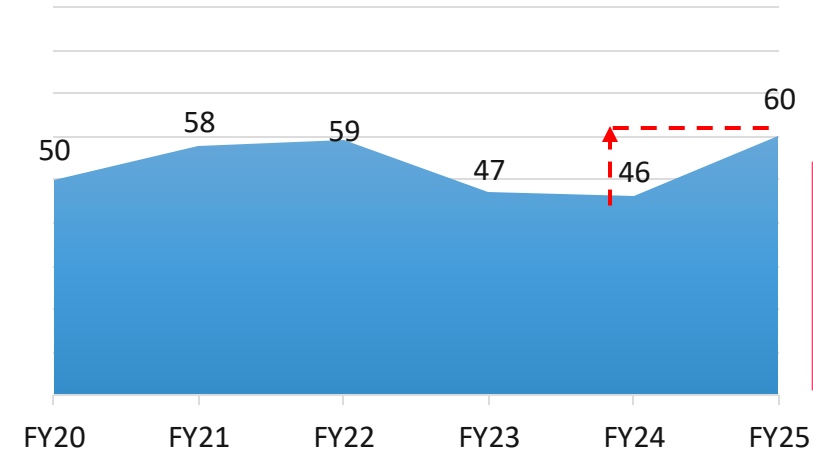
Double-Digit Commercialization Growth

Invention Disclosures



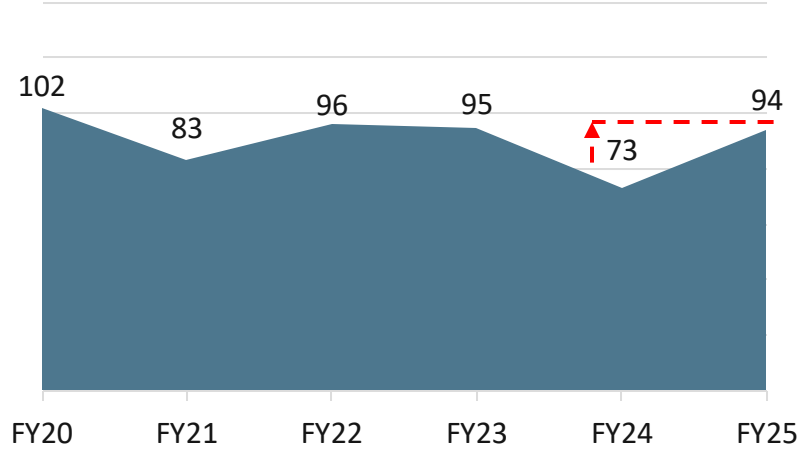
+21%
FY25 vs. FY24

Issued U.S. Patents



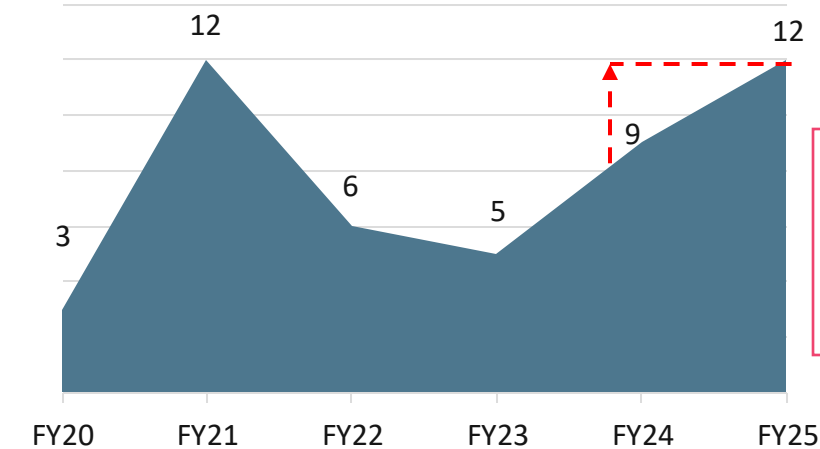
+30%
FY25 vs. FY24

New Provisional Patent Applications



+29%
FY25 vs. FY24

IP Startups Launched

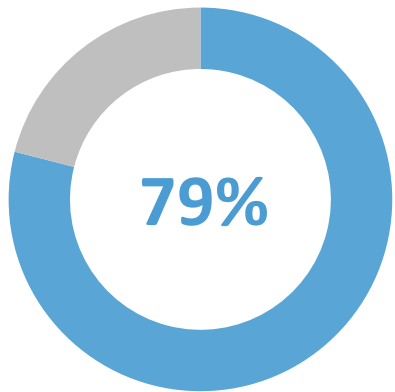


+33%
FY25 vs. FY24

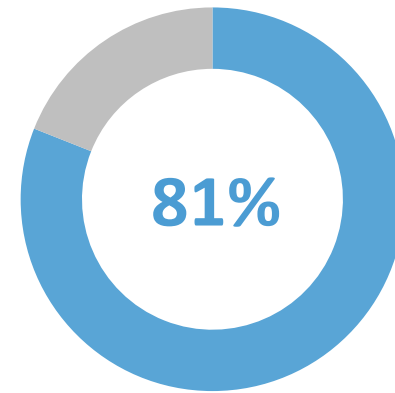
20%+ YoY Growth in Four Core Metrics

An Economic Engine in North Carolina

537	32	14,530	\$18.4B
HQ in NC	NC Counties	Jobs Created	Annual Revenue



of active UNC startups are headquartered in NC



of annual revenue earned by UNC startups is generated by firms headquartered in NC

