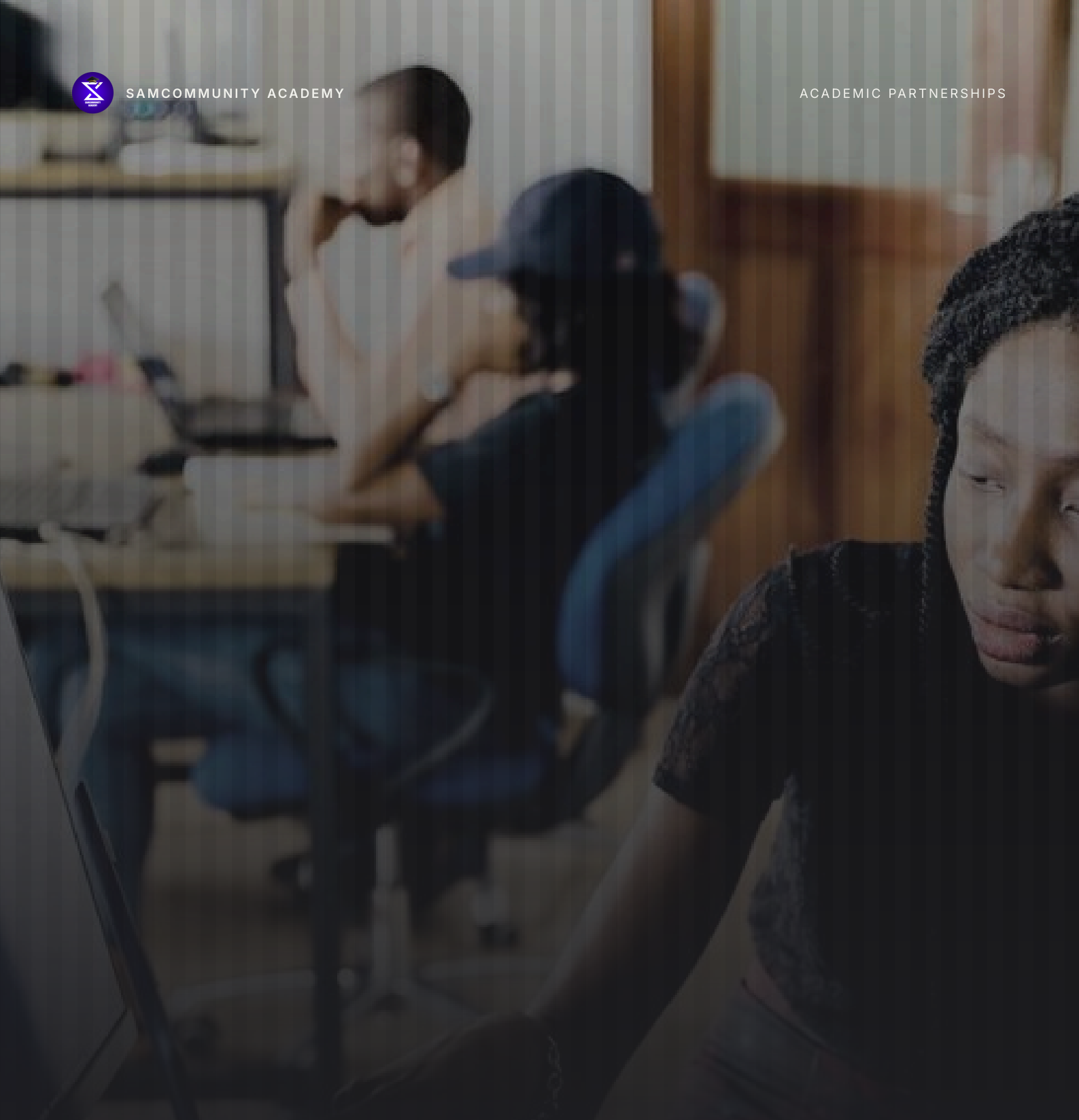


ACADEMIC PARTNERSHIP PROGRAMS · EXPERT

Capture The Flag (CTF) Academy

Learn security by competing.

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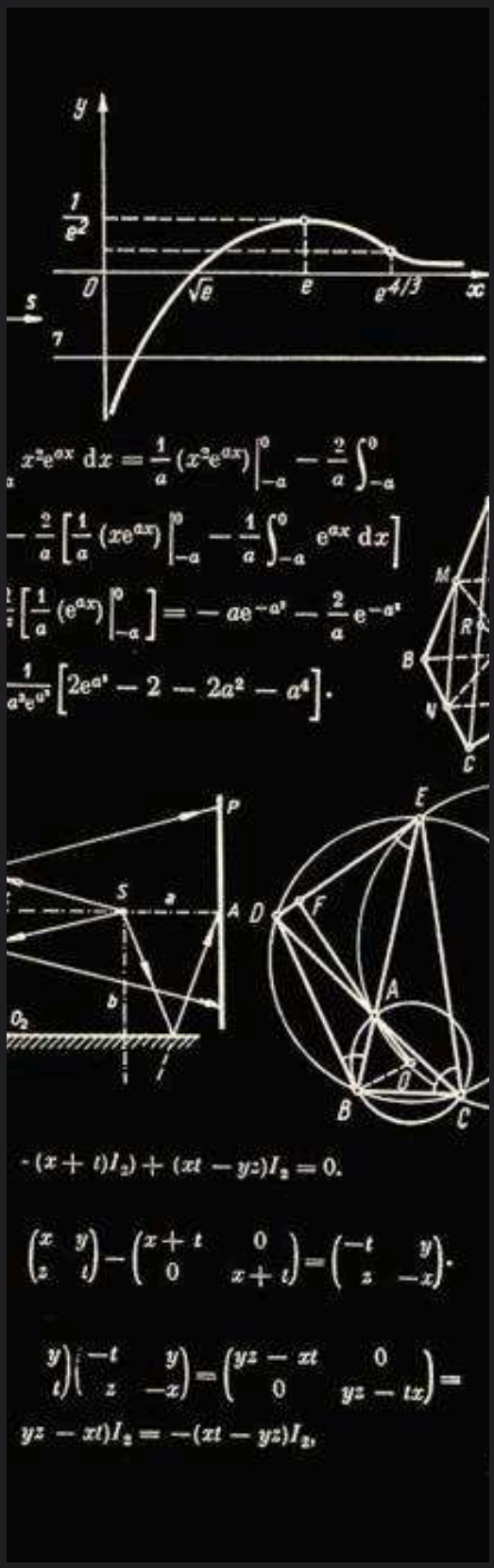
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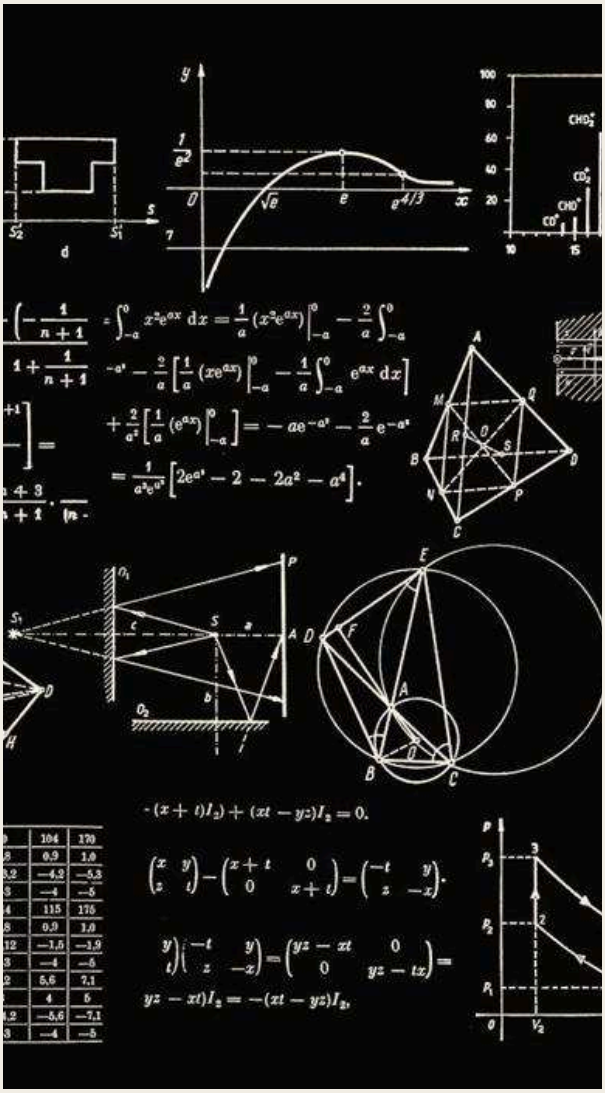


LEVEL	Expert
DURATION	Ongoing
MODULES	6
CERTIFICATE	SAM-CTF

Why this program

An ongoing CTF academy building competitive security skills on campus.

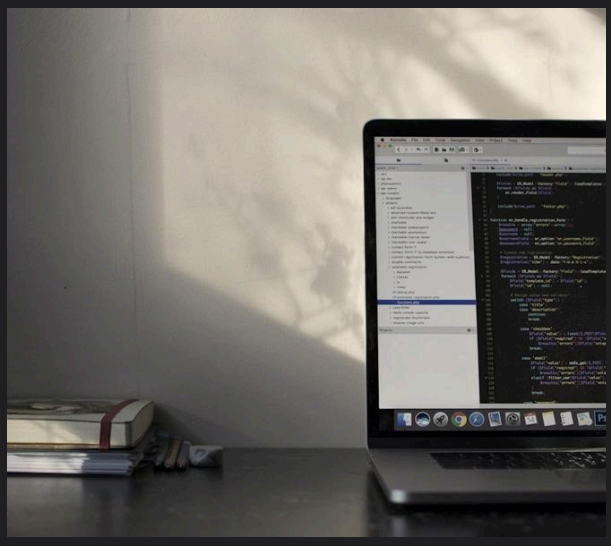
Capture The Flag competitions are one of the most engaging ways to build deep, practical security skills and teamwork. This ongoing campus academy trains students through rolling cycles covering web security, cryptography, forensics and introductory reverse engineering, using legal practice platforms and purpose-built challenges. Students learn to solve problems methodically, write clear write-ups, compete as teams and build a credible CTF track record.



Ongoing program of compact, practical sessions

6 focused modules, built around real work

3 projects plus a capstone presentation



Who this program is for



01

Vice-chancellors & deans

CoE, curriculum and accreditation support

02

Training & placement cells

Certification and placement readiness

03

Faculty

Faculty development programs

04

Top-tier students

Research internships, CTF academy, incubation

PREREQUISITES

- Comfort with the Linux command line
- Basic Python scripting
- Foundations of networking and web technologies

DESIGNED FOR

- Security analysts
- Penetration testers in authorised engagements
- Digital forensics analysts
- Application security engineers
- Security researchers

What you'll be able to do.

01 Approach CTF challenges methodically using structured problem-solving

02 Solve web security challenges based on OWASP Top 10 concepts

03 Identify common cryptographic mistakes in classical and modern schemes

04 Analyse files, packet captures and memory artefacts in forensics challenges

05 Understand basic program logic through introductory reverse engineering

06 Compete effectively as a team and publish clear write-ups

How the program works

Cycle 1: CTF Foundations

CTF formats and rules, Linux command line essentials, Python scripting for challenges, Ethics and legal boundaries.

Cycle 2: Web Security Challenges

HTTP and web application basics, OWASP Top 10 concepts, Input validation weaknesses, Authentication and session flaws.

Cycle 3: Cryptography Challenges

Classical ciphers, Encoding versus encryption, Hashing concepts, Common cryptographic mistakes.

Cycle 4: Forensics Challenges

File format analysis, Steganography basics, Packet capture analysis, Memory and disk artefacts.

01 · Cycle 1: CTF Foundations

02 · Cycle 2: Web Security Challenges

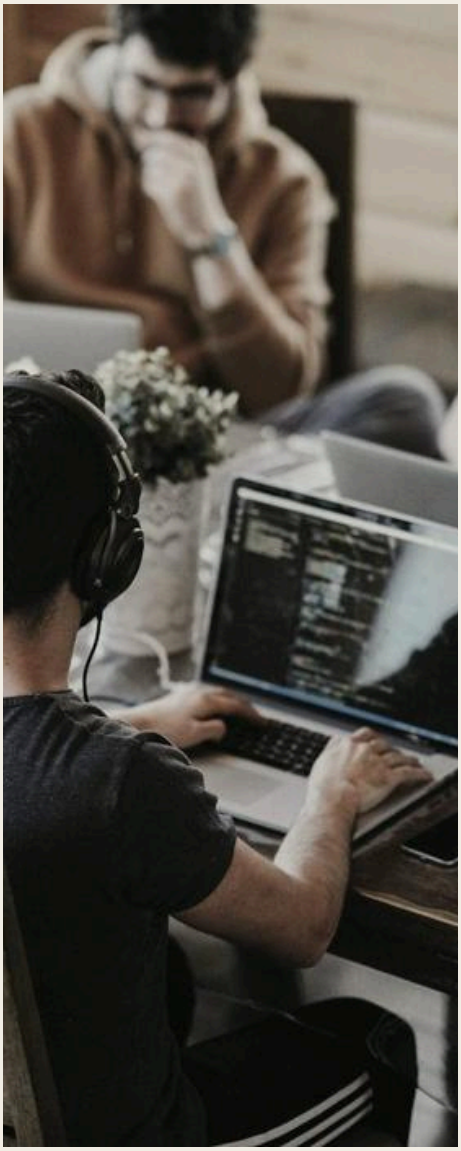
03 · Cycle 3: Cryptography Challenges

04 · Cycle 4: Forensics Challenges

05 · Cycle 5: Reverse Engineering Basics

06 · Cycle 6: Competition and Team Play

★ Capstone · Team CTF Season Review



The curriculum

MODULES 01–03

01 Cycle 1: CTF Foundations

Practical: Solve a set of beginner challenges on a legal practice platform

Python Linux

- CTF formats and rules
- Linux command line essentials
- Python scripting for challenges
- Ethics and legal boundaries
- Team roles and communication

02 Cycle 2: Web Security Challenges

Practical: Solve web challenges in a purpose-built lab and document the fix

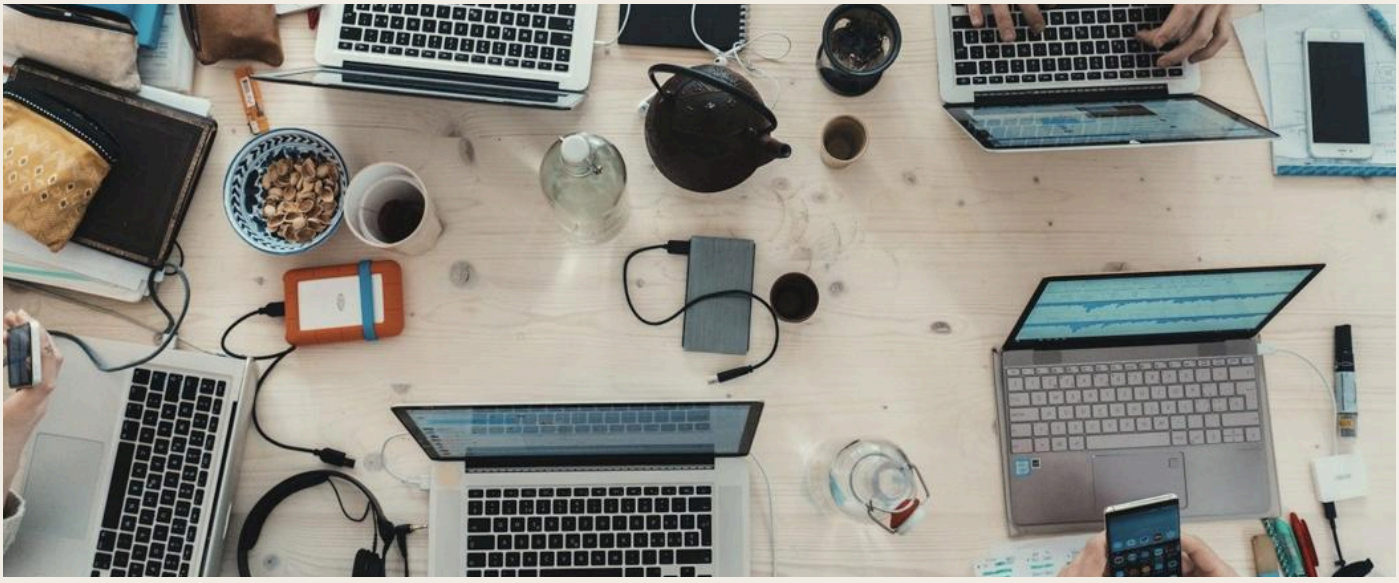
OWASP

- HTTP and web application basics
- OWASP Top 10 concepts
- Input validation weaknesses
- Authentication and session flaws
- Secure coding lessons

03 Cycle 3: Cryptography Challenges

Practical: Break classical cipher challenges and explain why each scheme was weak

- Classical ciphers
- Encoding versus encryption
- Hashing concepts
- Common cryptographic mistakes
- Modern cryptography fundamentals



Curriculum, continued

MODULES 04–06

04 Cycle 4: Forensics Challenges

Practical: Recover hidden flags from provided files, packet captures and memory samples

- File format analysis
- Steganography basics
- Packet capture analysis
- Memory and disk artefacts
- Log investigation

05 Cycle 5: Reverse Engineering Basics

Practical: Analyse a simple practice binary to understand and explain its logic

- Binary and assembly fundamentals
- Static analysis concepts
- Debugging fundamentals
- Understanding program logic
- Introductory crackme challenges

06 Cycle 6: Competition and Team Play

Practical: Compete in a timed team CTF and publish write-ups afterwards

- Practice competitions
- Team strategy and task splitting
- Writing challenge write-ups
- Hosting campus CTF events
- Tracking team performance



What you'll focus on.

OWASP 01

Cycle 1: CTF Foundations 02

Cycle 2: Web Security Challenges 03

Cycle 3: Cryptography Challenges 04

Cycle 4: Forensics Challenges 05



Kali Linux
Security testing distribution

Python
Automation & scripting

Linux
Server & CLI fundamentals

OWASP
Top 10 & testing standards

Projects & capstone

01

Challenge Write-Up Portfolio

Publish detailed write-ups for solved challenges across categories, explaining approach, tools used, lessons learned and defensive takeaways.

02

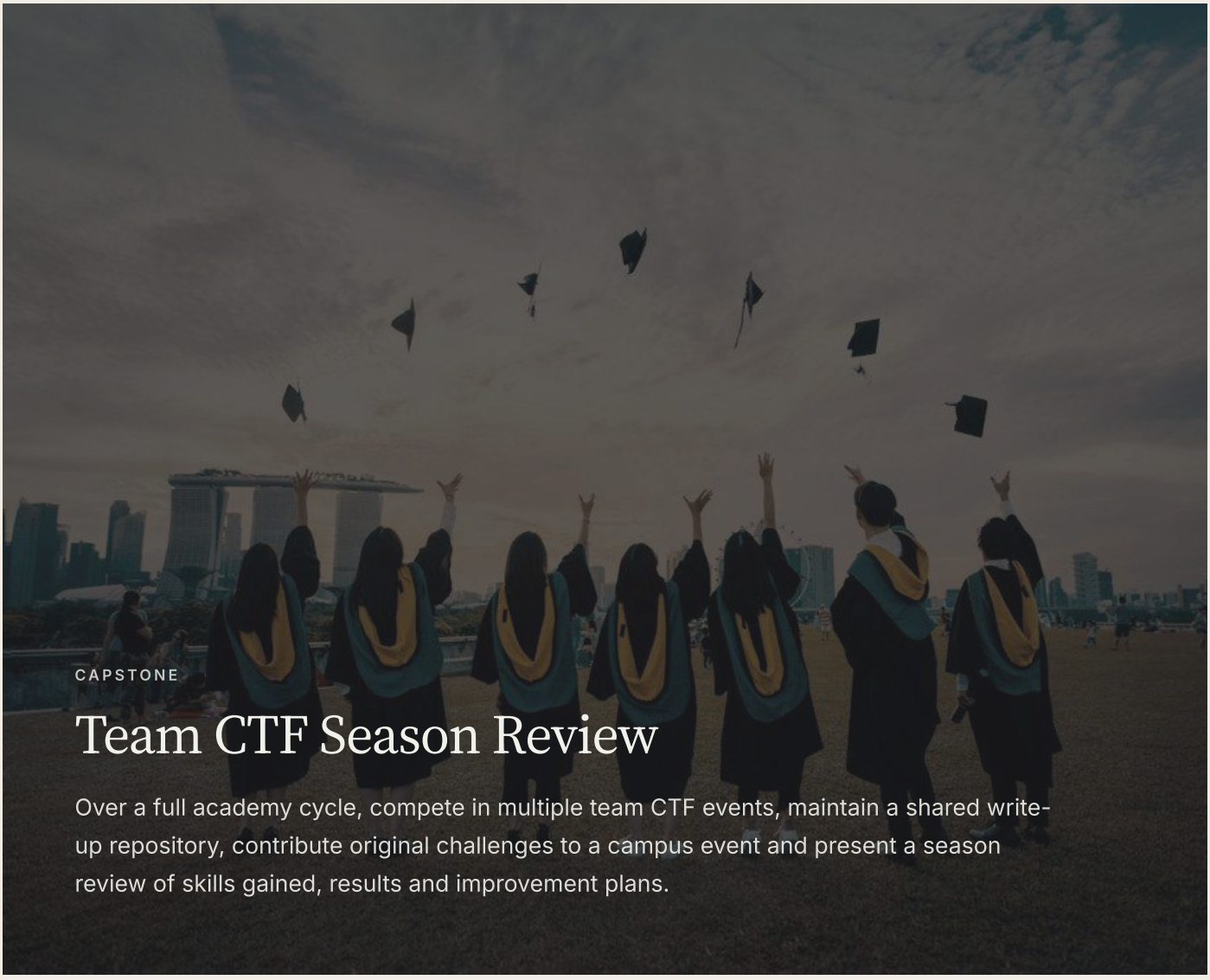
Campus Mini-CTF

Design and host a small campus CTF with original beginner challenges, a scoring system and clear rules of play.

03

Team Competition Run

Participate as a team in a public CTF, coordinate task splitting and review performance in a structured retrospective.



CAPSTONE

Team CTF Season Review

Over a full academy cycle, compete in multiple team CTF events, maintain a shared write-up repository, contribute original challenges to a campus event and present a season review of skills gained, results and improvement plans.

CERTIFICATION

SAM-CTF

Awarded on successful completion of the program assessments.

- MCQ assessments
- Practical lab evaluation
- Project & capstone review
- Final presentation

HOW YOU LEARN · THE SAM LEARNING FRAMEWORK™

01 Scenario

Real-world attack and use-case scenarios open every module.

02 Apply

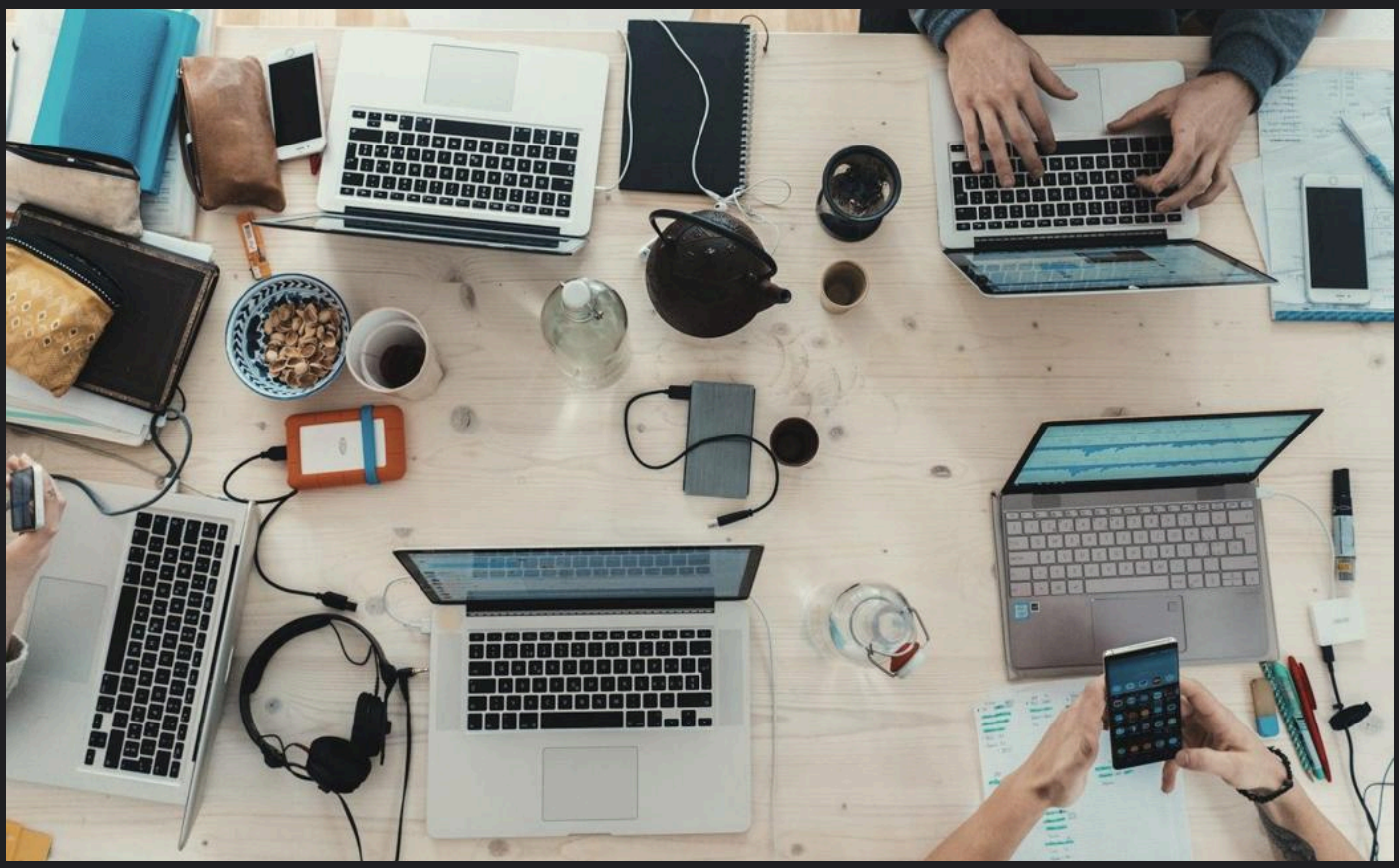
Hands-on lab work, CTF challenges and live projects.

03 Master

Assessment, peer review and certification prep.

04 Mentor

Post-program career guidance and support.



Delivery: Instructor-Led (ILT) · Virtual Instructor-Led · Self-Paced Online · E-Learning Licensing · Blended Learning · Corporate Onsite

Where this program fits

Advanced
3 programs

Expert
You are here

BEFORE THIS

Advanced Cybersecurity Research Internship	3 Months
AI Research & Innovation Program	3 Months
Cloud Architecture Challenge Program	6 Weeks

UP NEXT

The top of this pathway — explore related programs.



Questions, answered

Do I need prior experience to join?

Yes. This is an expert-level program that assumes prior experience in Linux, basic Python scripting and networking fundamentals. It moves quickly into frameworks, case studies and hands-on work, so participants should meet the listed prerequisites before enrolling.

How is the program delivered and scheduled?

The ongoing program is instructor-led and mentor-guided, delivered live virtual or in a blended format with partner institutions. It combines scheduled sessions, mentor check-ins and independent project work planned around the academic calendar.

Will I receive a certificate?

Yes. Participants who meet attendance requirements and successfully complete the assessments receive the Samcommunity Academy SAM-CTF certificate. Assessments may include quizzes, practical exercises and a final capstone review, depending on the program format.

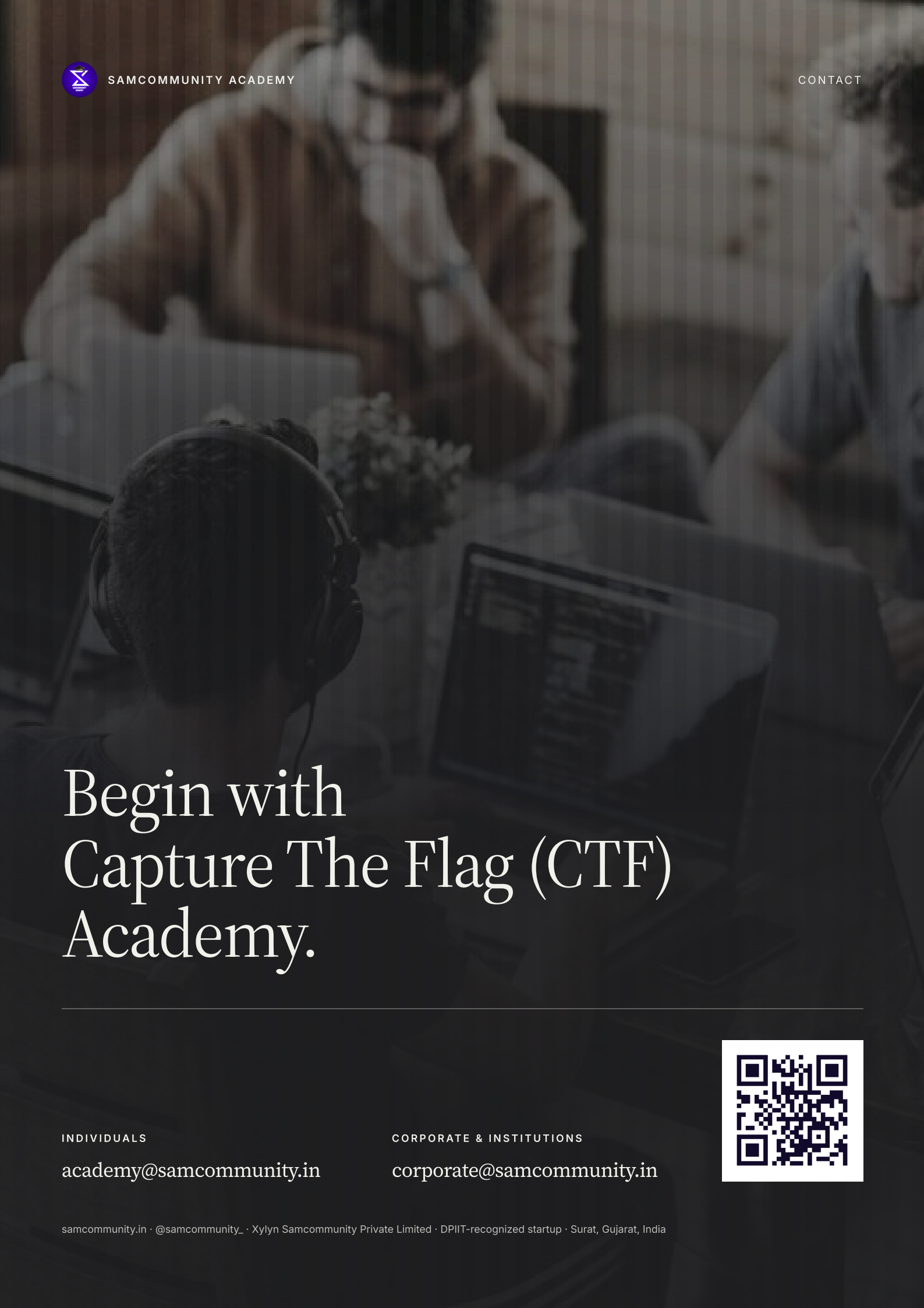
Will I get access to labs and tools?

Yes. Hands-on work uses a prepared lab environment with tools such as Kali Linux, Python, Linux. Access details are shared before the program starts, and all exercises run in isolated, authorised environments rather than live production systems.

Is career support included?

Participants receive mentor feedback, portfolio guidance and help presenting their work professionally. Samcommunity Academy may share relevant opportunities where available, but does not guarantee internships, jobs, rewards, bounty earnings or salary outcomes.





Begin with Capture The Flag (CTF) Academy.

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