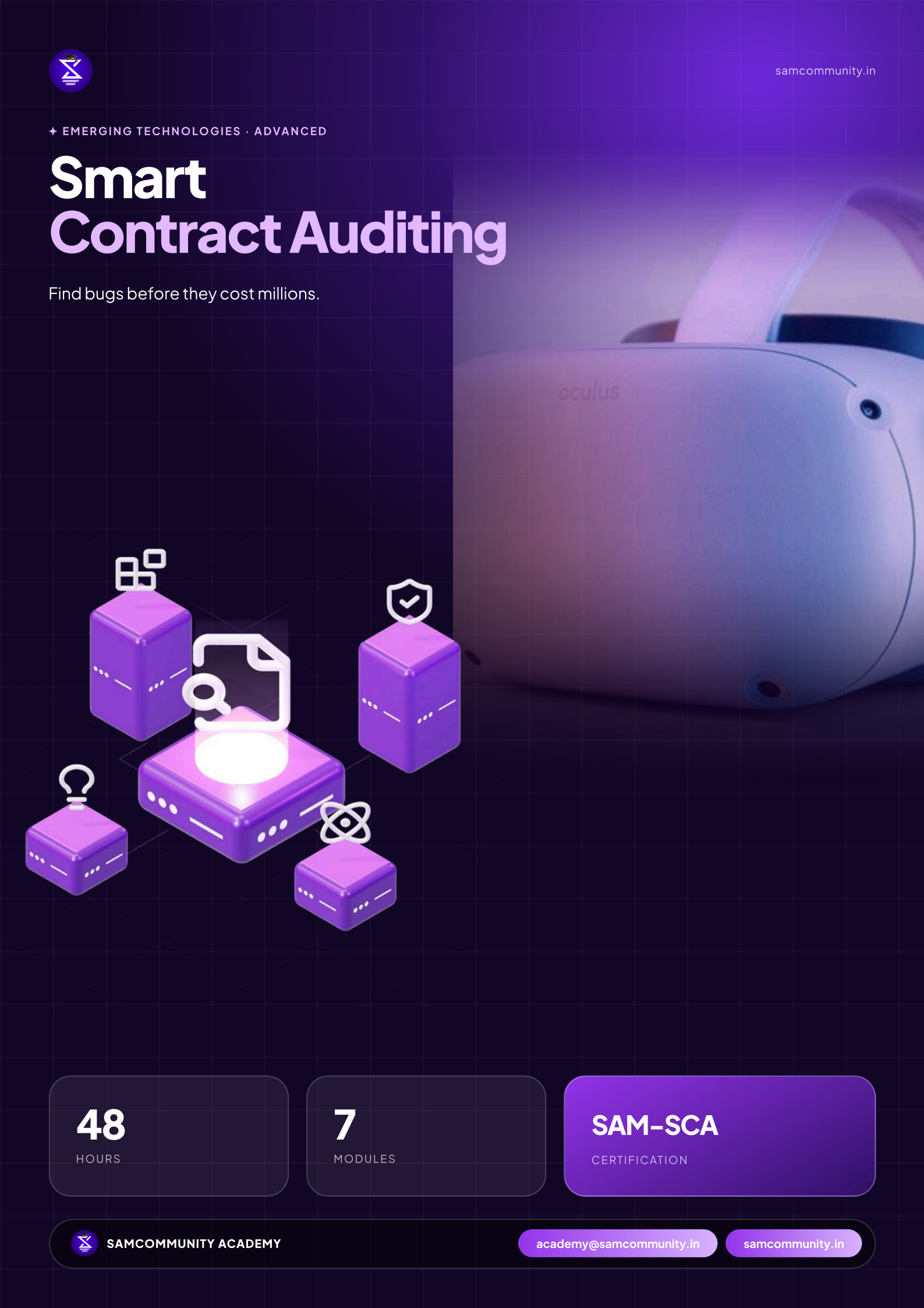
✦ EMERGING TECHNOLOGIES · ADVANCED

# Smart Contract Auditing

Find bugs before they cost millions.






| 48 | 7 | SAM-SCA |
|---|---|---|
| HOURS | MODULES | CERTIFICATION |

✦ INSIDE THIS BROCHURE

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AT A GLANCE

| | |
|---|---|
| Level | Advanced |
| Duration | 48 Hours |
| Modules | 7 |
| Certificate | SAM-SCA |

✦ PROGRAM OVERVIEW

# Find bugs before they cost millions.



Audit smart contracts for vulnerabilities and write professional audit reports.

Smart contract vulnerabilities have caused major losses because deployed code is public, immutable and directly controls value. Skilled auditors who can find flaws before deployment are essential to Web3 security. This advanced program teaches systematic auditing methodology, common and advanced vulnerability classes, tool-assisted analysis, exploit proof-of-concepts and professional audit reporting.

| LEVEL | DURATION | CERTIFICATION | DELIVERY |
|---|---|---|---|
| Advanced | 48 Hours | SAM-SCA | Instructor-led · Live virtual · Blended |



✦ WHAT YOU'LL PRACTISE

| | |
|---|---|
| Understand common contract vulnerabilities | 01 |
| Use auditing tools | 02 |
| Review and test contracts | 03 |
| Write audit reports | 04 |

✦ WHO IT'S FOR

# Built for people ready to grow.

01

### Curious professionals

Quantum, blockchain, IoT and AR/VR fundamentals

02

### Developers

Solidity, XR development, edge AI / TinyML

03

### Security teams

Quantum-safe crypto, IoT and 5G security

04

### Innovation teams

Digital twins and emerging-tech strategy

PREREQUISITES

| | |
|---|---|
| Solid Solidity development experience | 01 |
| Understanding of Ethereum and the EVM | 02 |
| Experience with Foundry or Hardhat testing | 03 |

ROLES YOU CAN TARGET

- Smart Contract Auditor ↗
- Blockchain Security Researcher ↗
- Web3 Security Engineer ↗
- Bug Bounty Hunter (Web3) ↗
- Protocol Security Reviewer ↗

✦ LEARNING OUTCOMES

# What you'll be able to do.

01 Apply a structured methodology to manual smart contract review

02 Identify reentrancy, access control and logic vulnerabilities

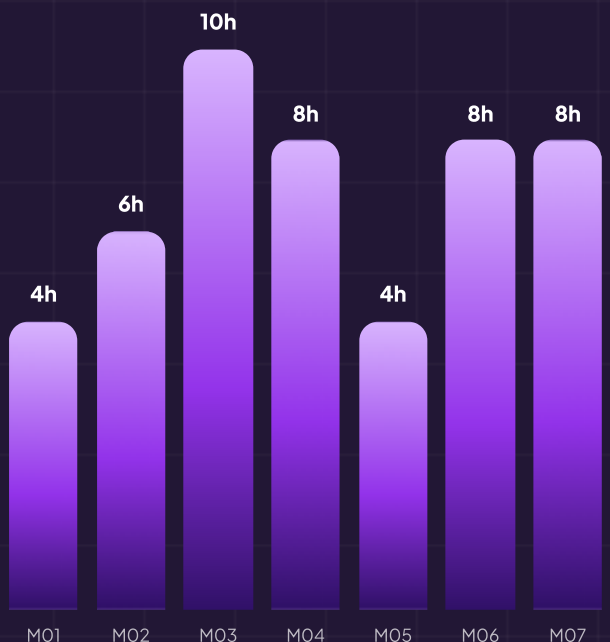
03 Analyse DeFi risks including oracle and flash loan attacks

04 Use Slither, Aderyn and Echidna for automated analysis

05 Write Foundry proof-of-concept exploits for discovered issues

06 Produce professional audit reports with severity ratings and fixes

HOURS PER MODULE



✦ PROGRAM RUNWAY

# Your journey, module by module.

7
MODULES · 48 HRS

| | | |
|---|---|---|
| 01 | **Audit Methodology and Mindset**<br>Audit lifecycle and scoping, Threat modelling protocols, Reading unfamiliar codebases | 4 hrs |
| 02 | **EVM Internals for Auditors**<br>Storage layout and slots, Calls, delegatecall and context, ABI encoding | 6 hrs |
| 03 | **Core Vulnerability Classes**<br>Reentrancy variants, Access control flaws, Integer and precision errors | 10 hrs |
| 04 | **DeFi and Protocol Risks**<br>Oracle manipulation, Flash loan attacks, AMM and lending protocol risks | 8 hrs |
| 05 | **Proxies and Upgradeability Risks**<br>Proxy patterns: transparent, UUPS, beacon, Storage collisions, Initializer vulnerabilities | 4 hrs |
| 06 | **Tool-Assisted Analysis**<br>Static analysis with Slither and Aderyn, Fuzzing with Echidna and Foundry, Invariant testing | 8 hrs |
| 07 | **Reporting and Remediation**<br>Writing clear findings, Proof-of-concept documentation, Severity and likelihood ratings | 8 hrs |
| ★ | **Capstone · Full Protocol Security Audit**<br>Assessment, capstone review and certification | |

✦ DETAILED CURRICULUM

# The syllabus.

Modules 01–03

MODULE 01

## Audit Methodology and Mindset

4 hours

**Hands-on lab**
Scope and threat-model a sample protocol before code review.

TOPICS COVERED

- Audit lifecycle and scoping
- Threat modelling protocols
- Reading unfamiliar codebases
- Severity classification
- Competitive audits and bug bounties

MODULE 02

## EVM Internals for Auditors

6 hours

**Hands-on lab**
Inspect storage slots and trace delegatecall behaviour with Foundry.

TOPICS COVERED

- Storage layout and slots
- Calls, delegatecall and context
- ABI encoding
- Low-level assembly and Yul
- Gas and execution limits

MODULE 03

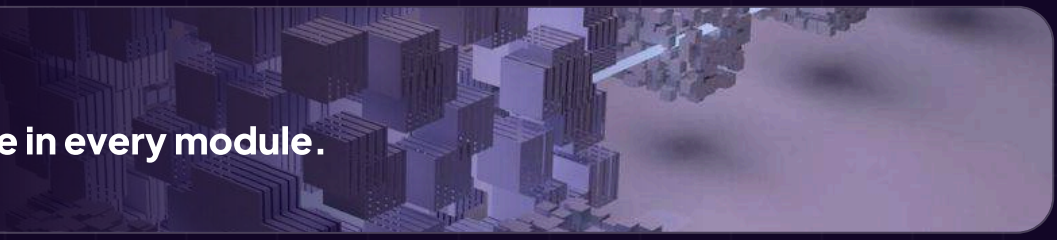
## Core Vulnerability Classes

10 hours

**Hands-on lab**
Find and exploit vulnerabilities in deliberately flawed contracts.

TOPICS COVERED

- Reentrancy variants
- Access control flaws
- Integer and precision errors
- Unchecked external calls
- Denial of service patterns
- Signature replay and malleability



LEARN BY DOING

## 7 guided labs, one in every module.

✦ DETAILED CURRICULUM

# Syllabus, continued.

Modules 04–05

MODULE 04

## DeFi and Protocol Risks

8 hours

**Hands-on lab**
Reproduce a historical DeFi exploit on a mainnet fork.

TOPICS COVERED

- Oracle manipulation
- Flash loan attacks
- AMM and lending protocol risks
- Front-running and MEV
- Governance attacks

MODULE 05

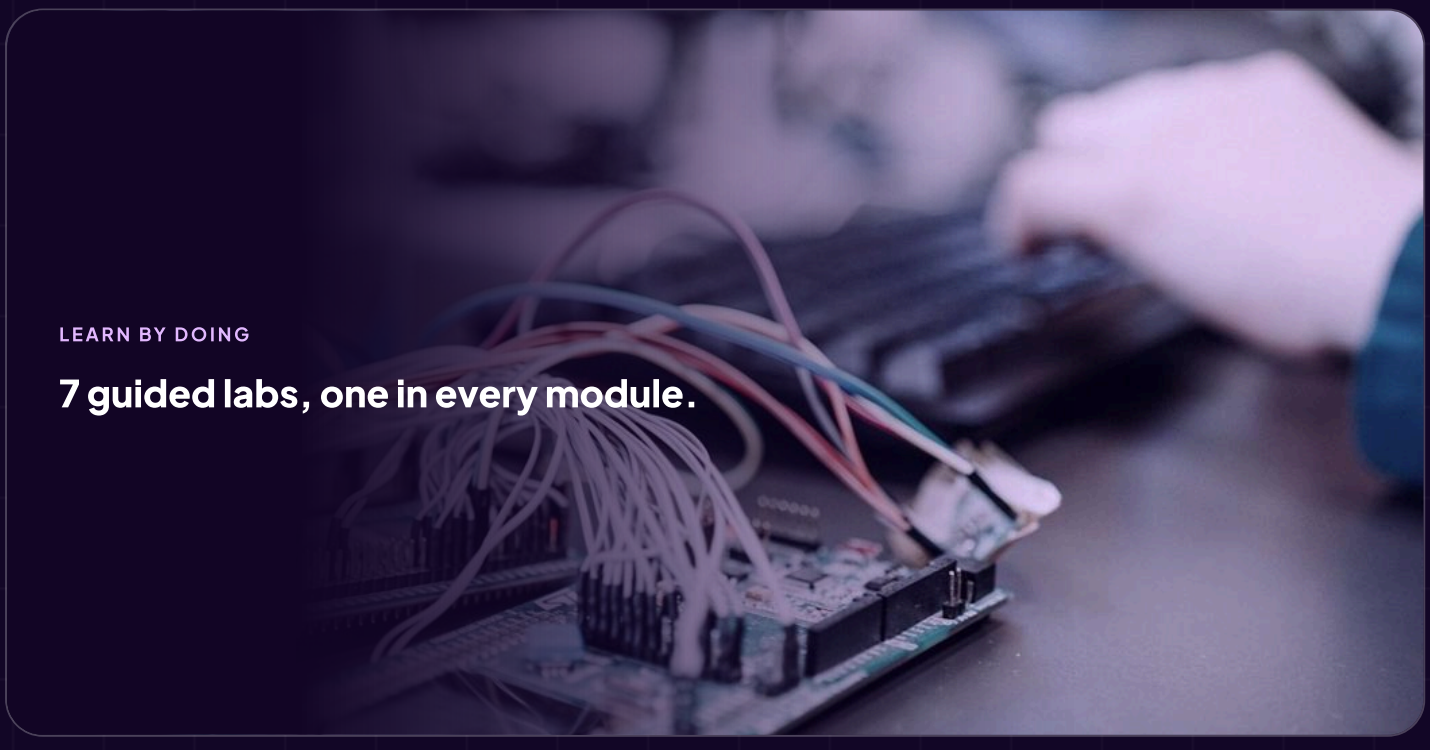
## Proxies and Upgradeability Risks

4 hours

**Hands-on lab**
Identify storage collision and initializer bugs in upgradeable contracts.

TOPICS COVERED

- Proxy patterns: transparent, UUPS, beacon
- Storage collisions
- Initializer vulnerabilities
- Upgrade governance risks
- Timelocks and admin key risks



LEARN BY DOING

## 7 guided labs, one in every module.

✦ DETAILED CURRICULUM

# Syllabus, continued.

Modules 06–07

MODULE 06

## Tool-Assisted Analysis

8 hours

**Hands-on lab**
Write invariant tests that uncover a hidden bug in a vault contract.

TOPICS COVERED

- Static analysis with Slither and Aderyn
- Fuzzing with Echidna and Foundry
- Invariant testing
- Symbolic execution concepts
- Formal verification overview

MODULE 07

## Reporting and Remediation

8 hours

**Hands-on lab**
Write a professional audit report for a reviewed contract.

TOPICS COVERED

- Writing clear findings
- Proof-of-concept documentation
- Severity and likelihood ratings
- Remediation recommendations
- Fix review process



CAPSTONE

## Full Protocol Security Audit

✦ YOUR STACK

# Tools you'll build with.

Real platforms and frameworks — the same stack modern teams ship with, practised in cloud-hosted labs.

**Solidity**
Contract language

**Ethereum**
Smart contract platform

**Python**
Automation & scripting



LAB ACCESS

## 24×7 cloud labs for the length of the program

✦ HANDS-ON WORK

# Projects that prove you can do it.

01

### Vulnerable Contract Challenges

Solve a series of security challenges covering reentrancy, access control and logic flaws with written exploit explanations.

02

### DeFi Exploit Reproduction

Reproduce a known DeFi exploit on a mainnet fork and document the root cause and fix.

03

### Invariant Testing Suite

Build a Foundry invariant and fuzz testing suite for a token vault, documenting discovered issues.

CAPSTONE PROJECT

## Full Protocol Security Audit

Conduct a complete security audit of a multi-contract DeFi protocol, combining manual review, automated tools and fuzzing, write proof-of-concept exploits and deliver a professional audit report with severity ratings and remediations.

Real-world scenario | Mentor review | Portfolio ready



CERTIFICATION

# SAM-SCA

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™

PHASE 01

S

### Scenario

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

PHASE 02

A

### Apply

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

PHASE 03

M

### Master

Assessment, peer review and certification prep.

PHASE 04

M

### Mentor

Post-program career guidance and support.

DELIVERY MODELS

- Instructor-Led (ILT)
- Virtual Instructor-Led
- Self-Paced Online
- E-Learning Licensing
- Blended Learning
- Corporate Onsite
- Bootcamp Intensive
- Hackathon / CTF
- Mentorship

✦ LEARNING PATH · EMERGING TECHNOLOGIES

# Where this program fits.

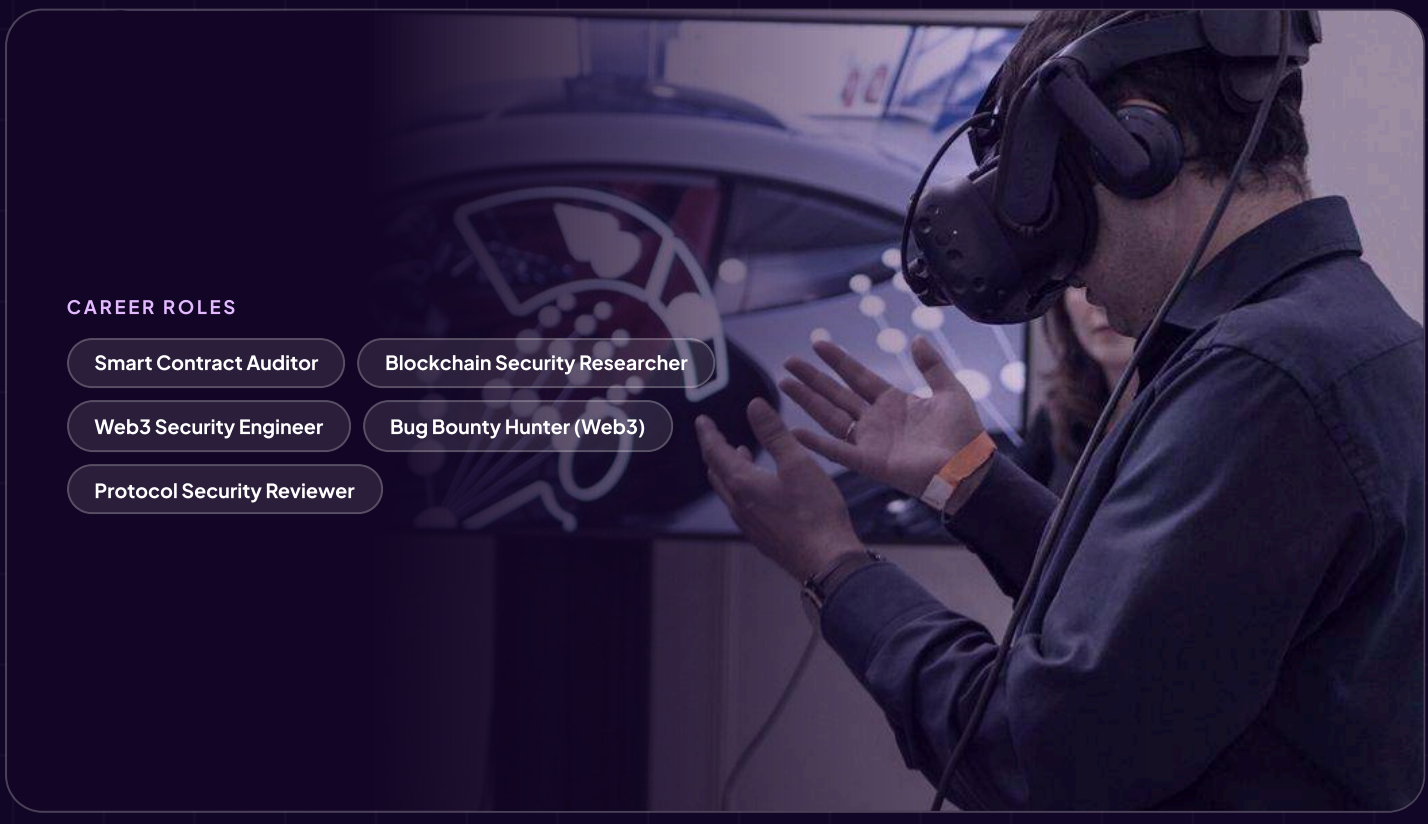
| Foundation | Intermediate | Advanced |
|---|---|---|
| 4 programs | 4 programs | You are here |

BEFORE THIS

| | |
|---|---|
| Quantum-Safe Cryptography | 48 Hours |
| Blockchain Development (Solidity/Ethereum) | 56 Hours |
| IoT Security & Architecture | 48 Hours |
| 5G Network Security | 40 Hours |

UP NEXT

The top of this pathway — explore related tracks.



CAREER ROLES

- Smart Contract Auditor
- Blockchain Security Researcher
- Web3 Security Engineer
- Bug Bounty Hunter (Web3)
- Protocol Security Reviewer

✦ FAQS

# Questions, answered.

## Q01

### Do I need prior experience to join?

Yes. You should be comfortable writing and testing Solidity contracts and understand how Ethereum and the EVM work. This advanced program focuses on security analysis and does not teach Solidity basics from scratch.

## Q02

### How is the program delivered and scheduled?

The 48 hours program is instructor-led and delivered live virtual or blended, combining concept sessions, demonstrations and guided hands-on work. Batch timings and session frequency are confirmed with the academy team at enrollment.

## Q03

### Will I receive a certificate?

Yes. Participants who attend the required sessions and pass the program assessments, including practical tasks and a capstone review, receive the Samcommunity Academy SAM-SCA certificate for Smart Contract Auditing.

## Q04

### What labs and tools will I have access to?

Labs use Foundry, Slither, Aderyn, Echidna, Python and mainnet forking through RPC providers, along with deliberately vulnerable contracts. Setup guidance and any required access details are shared before hands-on sessions.

## Q05

### Is career support provided?

Yes. You receive guidance on building a portfolio from your projects, presenting skills on your resume and preparing for interviews. Career support helps you present yourself well, but job placement, interviews and salaries are not guaranteed.



✦ LET'S TALK

# Start Smart Contract Auditing with Samcommunity.

INDIVIDUALS

**academy@samcommunity.in**

Batches, enrolment & career guidance

CORPORATE & INSTITUTIONS

**corporate@samcommunity.in**

Team batches & custom programs

Xylyn Samcommunity Private Limited · DPIIT-recognized startup · Surat, Gujarat, India