

ACADEMIC PARTNERSHIP PROGRAMS · ADVANCED

Cloud Architecture Challenge Program

Design. Build. Compete.

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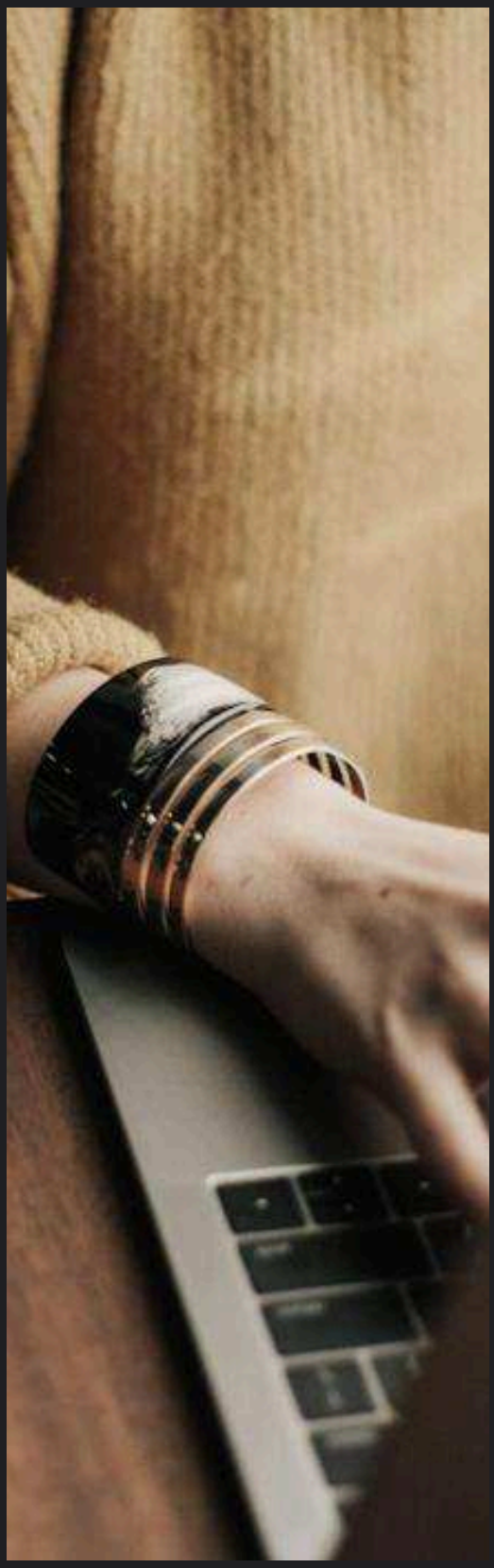
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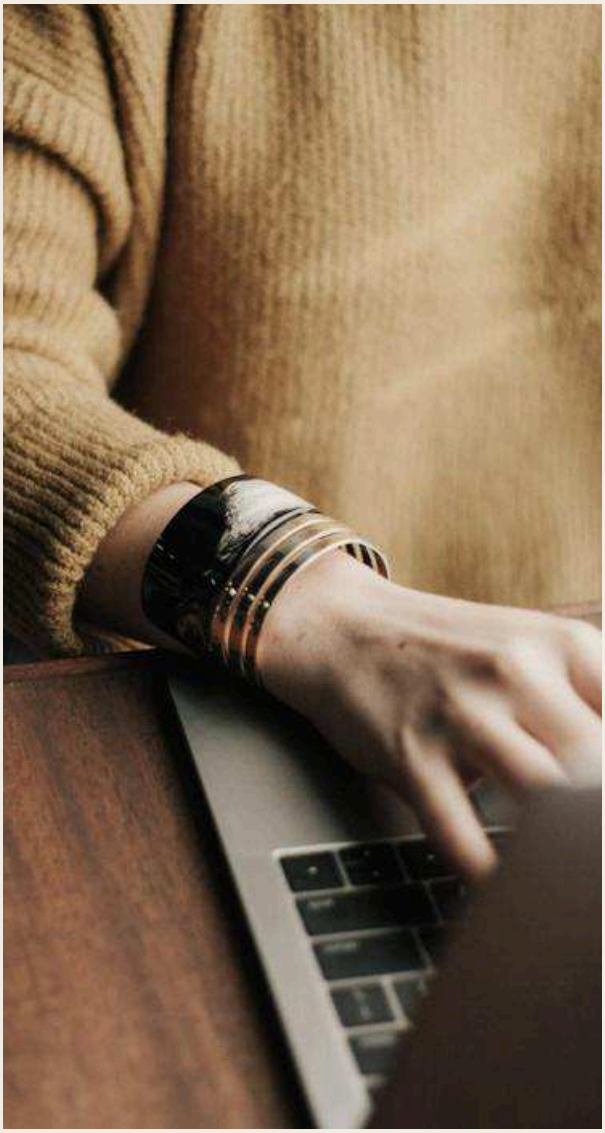


LEVEL	Advanced
DURATION	6 Weeks
MODULES	6
CERTIFICATE	SAM-IITCLD

Why this program

A competitive challenge program on designing and building cloud architectures.

Organisations need engineers who can design cloud systems that are secure, resilient and cost-effective, not just deploy services. This competitive challenge program teaches students to think like cloud architects across AWS, Azure and Google Cloud, covering well-architected principles, scalability, security, resilience and cost, then puts teams to work building and defending real architectures before a judging panel.



6 weeks 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

- Fundamentals of networking and Linux
- Basic experience with at least one cloud platform
- Programming or scripting familiarity

DESIGNED FOR

- Cloud solutions architects
- Cloud engineers
- DevOps engineers
- Site reliability engineers
- Cloud security engineers

What you'll be able to do.

01 Apply well-architected principles to design real cloud solutions

02 Compare core services across AWS, Azure and Google Cloud

03 Design scalable architectures using managed and serverless services

04 Build security, high availability and disaster recovery into designs

05 Optimise cloud cost through modelling and right-sizing resources

06 Present and defend architecture decisions before expert judges

How the program works

Week 1: Cloud Architecture Foundations

Well-architected framework pillars, Core compute, storage and networking, AWS, Azure and Google Cloud compared, Identity and access basics.

Week 2: Designing for Scale

Load balancing and autoscaling, Managed databases, Caching and content delivery, Serverless patterns.

Week 3: Security and Resilience

Shared responsibility model, Network security design, Encryption and key management, Multi-zone high availability.

Week 4: Cost and Operations

Cost modelling and estimation, Right-sizing resources, Infrastructure as code, Monitoring and logging.

01 · Week 1: Cloud Architecture Foundations

02 · Week 2: Designing for Scale

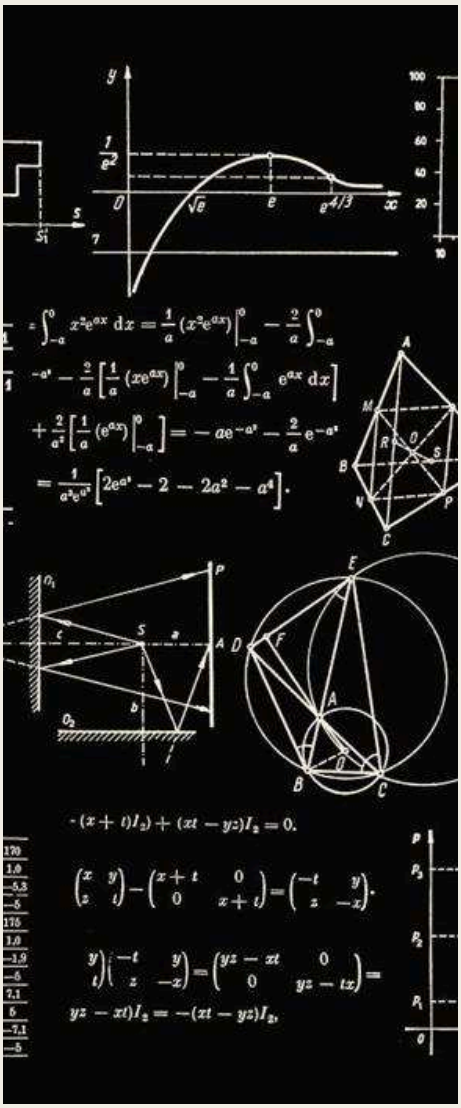
03 · Week 3: Security and Resilience

04 · Week 4: Cost and Operations

05 · Week 5: Challenge Build Sprint

06 · Week 6: Presentation and Defence

★ Capstone · Cloud Architecture Challenge Final



The curriculum

MODULES 01–03

01 Week 1: Cloud Architecture Foundations

Practical: Diagram a three-tier web application on two different cloud platforms

aws AWS Google Cloud

- Well-architected framework pillars
- Core compute, storage and networking
- AWS, Azure and Google Cloud compared
- Identity and access basics
- Architecture diagramming

02 Week 2: Designing for Scale

Practical: Design an autoscaling architecture for a traffic spike scenario with justification

- Load balancing and autoscaling
- Managed databases
- Caching and content delivery
- Serverless patterns
- Event-driven architecture

03 Week 3: Security and Resilience

Practical: Add security controls and a disaster recovery plan to a design

- Shared responsibility model
- Network security design
- Encryption and key management
- Multi-zone high availability
- Backup and disaster recovery



Curriculum, continued

MODULES 04–06

04 Week 4: Cost and Operations

Practical: Estimate and optimise monthly cost for an architecture using pricing calculators

- Cost modelling and estimation
- Right-sizing resources
- Infrastructure as code
- Monitoring and logging
- Operational runbooks

05 Week 5: Challenge Build Sprint

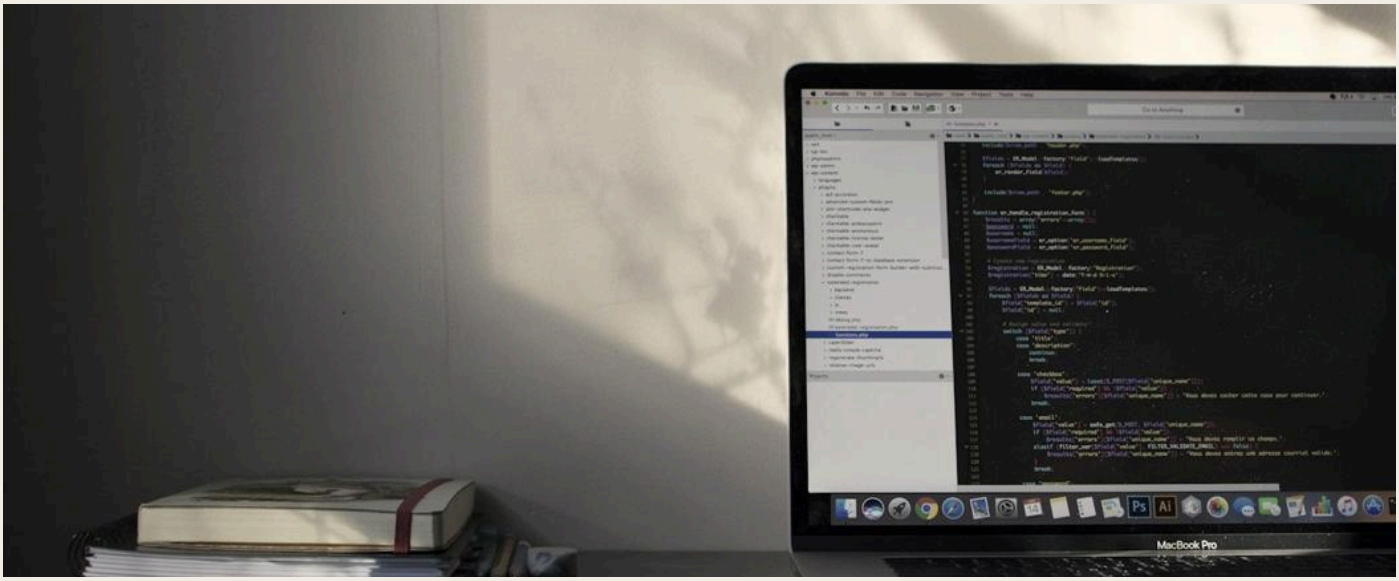
Practical: Build the challenge architecture with infrastructure as code and validate it

- Team challenge brief
- Architecture decision records
- Building on a chosen cloud
- Mentor checkpoint reviews
- Testing and validation

06 Week 6: Presentation and Defence

Practical: Present and defend the team design before a judging panel

- Architecture documentation
- Cost and resilience justification
- Technical presentation skills
- Judging panel Q&A
- Retrospective and feedback



What you'll focus on.

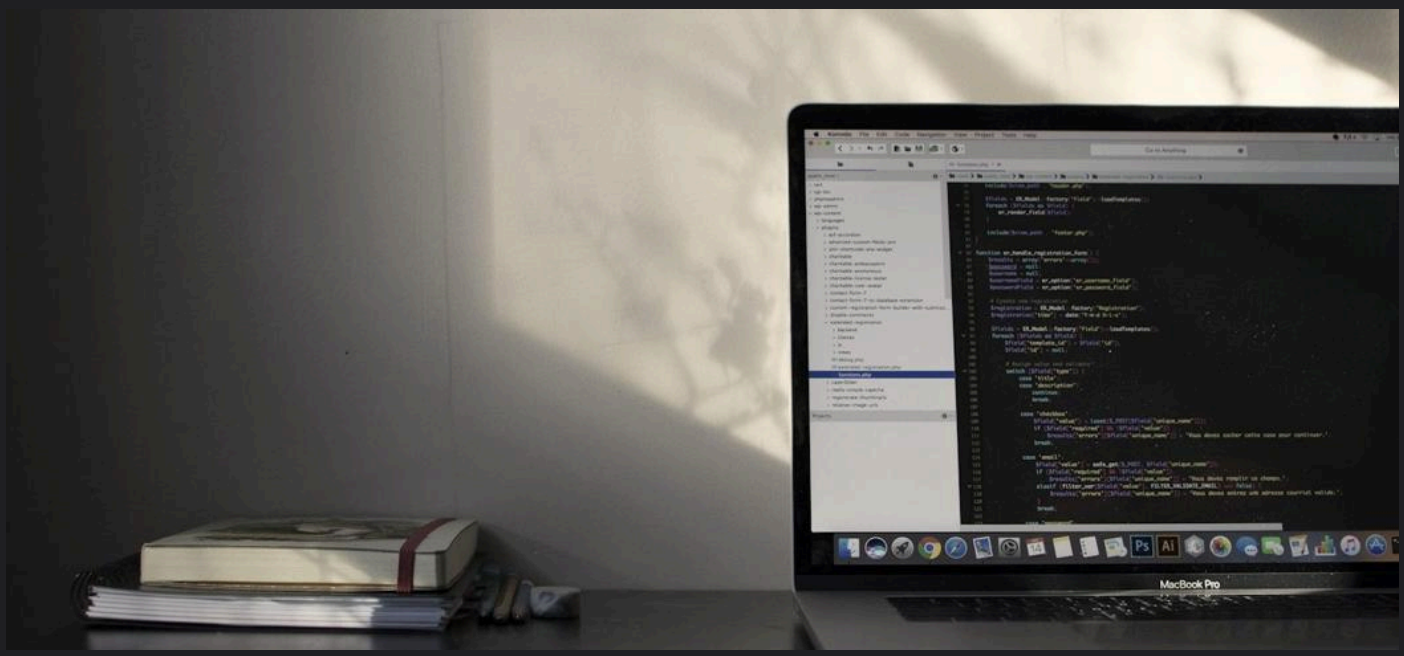
Week 1: Cloud Architecture Foundations 01

Week 2: Designing for Scale 02

Week 3: Security and Resilience 03

Week 4: Cost and Operations 04

Week 5: Challenge Build Sprint 05



AWS
Cloud platform

Microsoft Azure
Cloud platform

Google Cloud
Cloud platform

Projects & capstone

01

Multi-Cloud Design Comparison

Design the same application on two cloud platforms and compare services, trade-offs, cost estimates and operational complexity.

02

Resilience and DR Design

Extend an architecture with multi-zone availability, backups and a disaster recovery plan with defined recovery objectives.

03

Cost Optimisation Review

Analyse a sample cloud bill and architecture, then recommend right-sizing and design changes to reduce cost safely.



CAPSTONE

Cloud Architecture Challenge Final

Working in teams, design and build a cloud architecture for a realistic challenge brief, document decisions, cost and resilience trade-offs, deploy it using infrastructure as code, and present and defend the solution before a judging panel.

CERTIFICATION

SAM-IITCLD

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
You are here

Expert
3 programs

BEFORE THIS

A starting point — no prerequisite program needed.

UP NEXT

Capture The Flag (CTF) Academy	Ongoing
Bug Bounty Training & Mentorship	3 Months
Startup Technology Incubation Support	6 Months



Questions, answered

Do I need prior experience to join?

Yes. This is an advanced-level program that assumes prior experience in networking, Linux and at least one cloud platform. 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 6 weeks 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-IITCLD certificate. Assessments may include quizzes, practical exercises and a final capstone review, depending on the program format.

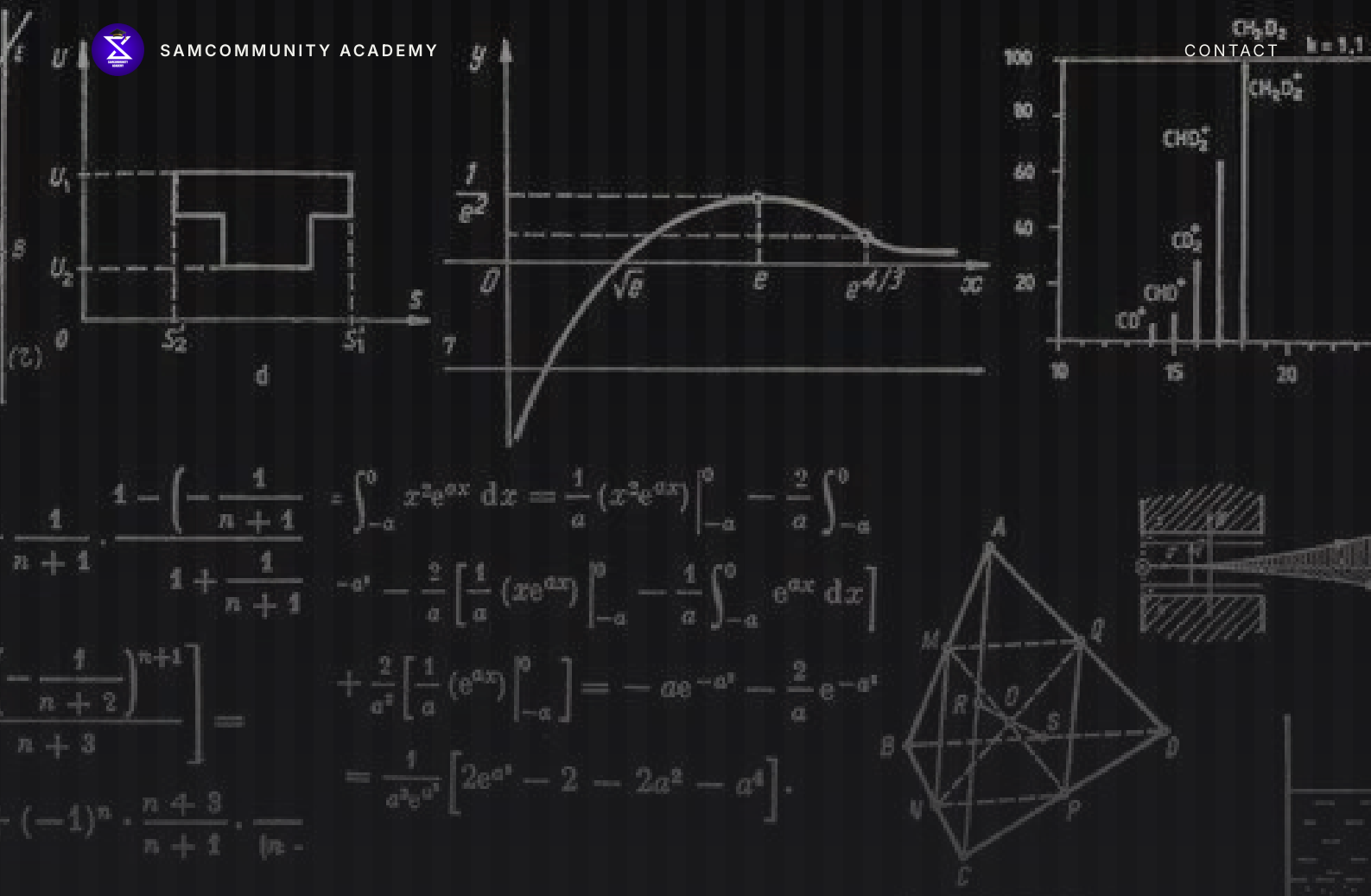
Will I get access to labs and tools?

Yes. Hands-on work uses a prepared lab environment with tools such as AWS, Azure, Google Cloud. 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 Cloud Architecture Challenge Program.

INDIVIDUALS

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CORPORATE & INSTITUTIONS

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