



EMERGING TECHNOLOGIES TRAINING

Blockchain Architecture and Network Design

5 day course

Classroom, online or in-house

Course overview

A technical course on designing and operating a distributed ledger network. Delegates work through node architecture and topology, consensus selection against throughput and finality requirements, data modelling on chain and off chain, smart contract design and its failure modes, key management and identity, and the interoperability problem between networks. Substantial attention is given to what breaks in production: chain reorganisation, contract upgrade paths, gas and throughput limits, and the operational reality that an immutable ledger makes a bug permanent. The course assumes delegates are comfortable with systems architecture and are evaluating or building a network rather than learning the concept.

What you will learn

- Design node architecture and network topology for a stated requirement
- Select a consensus mechanism against throughput, finality and trust assumptions
- Decide what belongs on chain and what must stay off it
- Design smart contracts with upgrade paths and failure modes considered
- Architect key management, identity and access for a permissioned network
- Assess interoperability options between networks
- Plan for the operational realities of running a ledger in production

Who should attend

- Solution and enterprise architects
- Senior developers and technical leads
- Infrastructure and platform engineers
- Technical risk and security professionals
- Chief technology officers evaluating a build

Course outline

- 01 Reference architectures and node topology
- 02 Consensus selection against throughput, finality and trust assumptions
- 03 On chain and off chain data modelling, and the cost of getting it wrong
- 04 Smart contract design, testing and the permanence of a deployed bug
- 05 Upgrade patterns and contract migration
- 06 Identity, key management and access control on a permissioned network
- 07 Interoperability, bridges and their security record
- 08 Running in production: monitoring, throughput limits and incident response

Upcoming dates

Dates	Venue	Format	Fee per delegate
9 to 13 November 2026	Online	Online	R8,500
7 to 11 December 2026	Pretoria, South Africa	Classroom	R19,950
25 to 29 January 2027	Johannesburg, South Africa	Classroom	R19,950

Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia,



Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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