



ENGINEERING AND TECHNICAL TRAINING

Water Retaining Structures and Small Dam Construction

5 day course

Classroom, online or in-house

Course overview

A small dam that fails releases its water onto whoever is downstream, and small dams fail far more often than large ones because they are designed quickly, built by whoever is available and then never inspected again. This course takes them seriously. Delegates work through site selection, catchment yield and the spillway capacity that most failures trace back to. Embankment dams are covered in detail: zoning, core material, compaction control and the seepage control that decides whether a dam survives its first full supply. Concrete water retaining structures follow, including reservoirs and tanks, with crack control, waterstops and the watertightness testing they require. Outlet works, valves and low level draw off are addressed. Instrumentation and monitoring are covered, including seepage measurement and piezometers. Safety inspection regimes follow. Failure modes are worked through: overtopping, piping, slope instability and foundation seepage. The course closes on emergency preparedness and on the legal duties an owner carries.

What you will learn

- Select a site and size a spillway against catchment yield
- Zone an embankment and control core compaction
- Control seepage through and beneath an embankment
- Construct concrete water retaining structures that stay watertight
- Design and maintain outlet works and low level draw off
- Monitor seepage and pore pressure through instrumentation
- Recognise overtopping, piping and instability, and prepare for emergencies

Who should attend

- Civil engineers designing or supervising dams
- Water authority and irrigation scheme staff
- Dam safety inspectors
- Contractors building embankments and reservoirs
- Owners responsible for farm and community dams

Course outline

- 01 Small dams fail more often
- 02 Site selection and catchment yield
- 03 Spillway capacity
- 04 Embankment zoning and core material
- 05 Compaction control and seepage
- 06 Concrete reservoirs, waterstops and watertightness
- 07 Outlet works and instrumentation
- 08 Failure modes, inspection, emergencies and owner duties

Upcoming dates



Dates	Venue	Format	Fee per delegate
7 to 11 December 2026	Online	Online	R8,500
11 to 15 January 2027	Kampala, Uganda	Classroom	USD 1,325
25 to 29 January 2027	Maputo, Mozambique	Classroom	USD 1,325
15 to 19 March 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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