



CIVIL ENGINEERING AND CONSTRUCTION TRAINING

Reinforced Concrete Structural Design

5 day course

Classroom, online or in-house

Course overview

Many reinforced concrete problems that reach a reviewing engineer trace back to a calculation rather than a pour: a missed shear check, inadequate anchorage at a support, or a slab that met strength but cracked and sagged in service. This course works through the design of concrete elements by calculation, setting Eurocode 2 and SANS 10100 side by side so delegates see where the two agree and where partial factors, stress blocks and detailing rules differ. Sessions cover limit state principles, flexure in beams and slabs, shear and torsion, columns under axial load and biaxial bending, punching at flat slab columns, and serviceability through span to depth ratios and crack width limits. Delegates finish able to size members, determine reinforcement areas and produce detailing that a checking engineer will accept.

What you will learn

- Apply limit state design principles and partial safety factors to concrete members
- Calculate flexural reinforcement for rectangular and flanged beam sections
- Design one way, two way and flat slabs including punching shear at columns
- Evaluate shear and torsion capacity and provide suitable links
- Design short and slender columns under axial load and biaxial bending
- Check deflection and crack width for serviceability
- Specify anchorage, lap lengths, cover and bar spacing that satisfy code detailing rules
- Compare Eurocode 2 and SANS 10100 requirements and explain where results differ

Who should attend

- Civil and structural design engineers
- Structural technologists preparing calculations and bending schedules
- Engineers changing from SANS 10100 to Eurocode 2 practice
- Municipal and public works engineers checking submitted designs
- Engineers in training preparing for professional registration

Course outline

- 01 Limit state philosophy and material properties
- 02 Flexure in rectangular and flanged sections
- 03 Shear, torsion and link design
- 04 Slab systems and punching shear
- 05 Columns, slenderness and biaxial bending
- 06 Serviceability: deflection and cracking
- 07 Detailing, anchorage and laps
- 08 Eurocode 2 and SANS 10100 compared
- 09 Worked design of a complete frame

Upcoming dates



Dates	Venue	Format	Fee per delegate
21 to 25 December 2026	Kigali, Rwanda	Classroom	USD 1,325
4 to 8 January 2027	Online	Online	R8,500
18 to 22 January 2027	Kampala, Uganda	Classroom	USD 1,325
25 to 29 January 2027	Casablanca, Morocco	Classroom	USD 1,325

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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