



ENGINEERING AND TECHNICAL TRAINING

Control Systems Design for Automation and Robotics

5 day course

Classroom, online or in-house

Course overview

This course covers the design of control systems for automated machinery and robotic cells. Delegates work through system modelling and response, controller design and tuning, motion control and servo systems, sensor and actuator selection, and the integration of robotic cells with upstream and downstream equipment. Machine safety is treated as a design constraint rather than an afterthought, covering risk assessment, safety functions, performance levels and the practical design of guarding and interlocks. Delegates finish able to specify a control architecture for a cell and to review a supplier's design against the requirement.

What you will learn

- Model a controlled system and predict its response
- Design and tune controllers for motion and machine applications
- Select sensors and actuators appropriate to the duty
- Specify motion control and servo systems
- Integrate a robotic cell with upstream and downstream equipment
- Apply machine safety requirements as a design constraint
- Review a supplier's control design against the stated requirement

Who should attend

- Control, automation and mechatronics engineers
- Machine designers and integrators
- Manufacturing and production engineers
- Maintenance engineers supporting automated cells
- Technical staff specifying automation projects

Course outline

- 01 System modelling and dynamic response
- 02 Controller design and tuning for machine applications
- 03 Motion control and servo systems
- 04 Sensor and actuator selection
- 05 Robotic cell architecture and integration
- 06 Machine safety: risk assessment, safety functions and performance levels
- 07 Guarding, interlocks and safe stop design
- 08 Reviewing a supplier design against requirement

Upcoming dates

Dates	Venue	Format	Fee per delegate
16 to 20 November 2026	Online	Online	R8,500
4 to 8 January 2027	Johannesburg, South Africa	Classroom	R19,950
25 to 29 January 2027	Nairobi, Kenya	Classroom	USD 1,325
1 to 5 March 2027	Durban, 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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