



ENGINEERING AND TECHNICAL TRAINING

Flange Management and Bolted Joint Integrity

3 day course

Classroom, online or in-house

Course overview

A bolted joint is the most common thing on a plant and the most common source of leaks, and the reason is almost never the gasket but how the joint was assembled by somebody who was never taught. This course teaches it. Delegates work through joint theory including bolt load, gasket compression and why a joint relaxes after assembly, flange types, ratings and the gasket selection that suits a service. Surface condition and the flaws that will leak regardless of torque are covered. Assembly technique follows: cleaning, lubrication, alignment, tightening pattern and the difference between torque, tension and controlled bolting. Joint registers and the management of joints broken during a shutdown are addressed. The course closes on leak investigation and on competence assurance for joint makers.

What you will learn

- Explain bolt load, gasket compression and post assembly relaxation
- Select flanges, ratings and gaskets appropriate to the service
- Assess surface condition and reject flanges that will leak
- Assemble a joint with correct lubrication, alignment and tightening pattern
- Distinguish torque, tension and controlled bolting methods
- Maintain a joint register through a shutdown
- Investigate a leak and assure joint maker competence

Who should attend

- Mechanical fitters and pipefitters
- Maintenance and turnaround supervisors
- Inspection and integrity engineers
- Process engineers responsible for containment
- Contractors breaking and remaking joints

Course outline

- 01 The commonest source of leaks
- 02 Bolt load and gasket compression
- 03 Why joints relax after assembly
- 04 Flange types, ratings and gasket selection
- 05 Surface condition and unacceptable flaws
- 06 Assembly: cleaning, lubrication and alignment
- 07 Tightening patterns and controlled bolting
- 08 Joint registers, leak investigation and competence

Upcoming dates

Dates	Venue	Format	Fee per delegate
12 to 14 October 2026	Dar es Salaam, Tanzania	Classroom	USD 995
20 to 22 January 2027	Maputo, Mozambique	Classroom	USD 995
27 to 29 January 2027	Online	Online	R6,500
29 to 31 March 2027	Nairobi, Kenya	Classroom	USD 995



Fees and how to register

This 3 day course is **R6,500** per delegate online, **R14,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 995** 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@afri-science.co.za, or WhatsApp us on **+27 63 479 1136**.

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