



MANUFACTURING AND PRODUCTION

Forging and Hot Metal Forming

3 day course

Classroom, online or in-house

Course overview

Forging produces components with a grain flow that follows the shape, which is why forged parts survive loads that castings and machined bar do not, and why a poorly designed forging throws that advantage away. This course covers keeping it. Delegates work through metal flow under load, the forging temperature range and the consequences of working outside it at either end. Open die, closed die and upset forging are covered with the products and tolerances each gives. Die design is addressed, including flash, gutter, draft and the fillet radii that prevent laps. Preform and blocker design follow, since most forging faults originate in the stage before the finish impression. Heating practice is covered, including scale, decarburisation and overheating. Press and hammer selection is addressed. Trimming, straightening and post forge heat treatment follow. Defects are diagnosed: laps, cold shuts, underfill and flow line disruption. The course closes on die wear, on lubrication and on forging tolerance expectations.

What you will learn

- Explain metal flow and the forging temperature range
- Select open die, closed die or upset forging for the part
- Design dies with correct flash, draft and fillet radii
- Design preforms and blockers that prevent finish stage faults
- Control heating, scale and decarburisation
- Select press or hammer equipment appropriately
- Diagnose laps, cold shuts and underfill, and manage die wear

Who should attend

- Forging shop supervisors and operators
- Die designers and toolmakers
- Metallurgists supporting forging operations
- Quality staff inspecting forgings
- Engineers specifying forged components

Course outline

- 01 Grain flow that follows the shape
- 02 Metal flow and forging temperature range
- 03 Open die, closed die and upset forging
- 04 Die design, flash and draft
- 05 Preform and blocker design
- 06 Heating, scale and decarburisation
- 07 Press and hammer selection
- 08 Trimming, defects, die wear and tolerances

Upcoming dates



Dates	Venue	Format	Fee per delegate
30 September to 2 October 2026	Cape Town, South Africa	Classroom	R14,950
26 to 28 October 2026	Nairobi, Kenya	Classroom	USD 995
30 November to 2 December 2026	Pretoria, South Africa	Classroom	R14,950
6 to 8 January 2027	Lagos, Nigeria	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@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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