GATI

CEMENT MANUFACTURING

Scanning Electron Microscopy of Cement and Concrete

DURATION	CONTACT HOURS	LEVEL	FEE PER DELEGATE
5 days	30	Intermediate	US$1,500

Using scanning electron microscopy to answer questions about cement and concrete that other methods cannot.

Electron microscopy resolves questions routine testing can only infer: what a hydration product actually looks like, whether an aggregate reaction has occurred, why a clinker burned badly. This week covers sample preparation, which is where most of the quality of the eventual image is decided, imaging modes and what each shows, microanalysis and its quantification, and interpretation of cement and concrete microstructures. Artefacts are given their own session, because a preparation artefact confidently interpreted is worse than no analysis.

Available as classroom, live online, in house.

Who it is for

Laboratory managers and microscopists, research and development staff, quality engineers investigating failures, and concrete technologists and forensic investigators.

What you will be able to do

- Prepare cement and concrete samples without destroying what you came to see.
- Select imaging modes appropriate to the question.
- Carry out and interpret microanalysis.
- Identify hydration products, clinker phases and deterioration features.
- Recognise preparation and imaging artefacts.

The outline

DAY 1

Preparation

Sectioning, impregnation and polishing · Drying methods, and what each does to the microstructure · Coating and charging

DAY 2

Imaging

Secondary and backscattered electron imaging · Contrast, resolution and magnification choice · Image acquisition settings

DAY 3

Microanalysis

Energy dispersive spectroscopy · Quantification and its limits in porous material · Element mapping

DAY 4

Interpretation

Clinker phases and burning history · Hydration products and degree of hydration · Alkali silica reaction, ettringite and carbonation features

DAY 5

Artefacts

Drying cracks and preparation damage · Beam damage · Reporting with appropriate caution

What you leave with

- Prepared and imaged samples of your own.
- A microanalysis interpretation.
- An artefact reference set.

Published dates

DATES	WHERE	FEE
23 to 27 November 2026	Cairo, Egypt	**US$1,500**
30 November 2026 to 4 December 2026	Nairobi, Kenya	**US$1,500**
7 to 11 December 2026	Lagos, Nigeria	**US$1,500**
14 to 18 December 2026	Dubai, United Arab Emirates	**US$1,500**

Fees are per delegate and co
arranged by the delegate. Reg

Register or ask a question

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