



Radiation Protection Level 2

3 days

18 training hours

08:30 to 16:00 daily

20 scheduled dates

An intermediate, operational programme for personnel who already understand radiation protection basics and need to apply a radiation protection programme in the workplace. It builds practical ability in hazard assessment, radiation detection and surveys, personal dosimetry, external and internal exposure control, contamination control, radioactive source management, controlled areas, incident response and record keeping.

Course objectives

This programme builds the practical capability to plan, control and evaluate the work it covers, to a standard the delegate's own organisation can rely on. By the end of the 3 days, delegates should be able to:

- Apply intermediate radiation protection principles to workplace situations.
- Identify and assess radiation hazards and interpret survey and monitoring data.
- Plan and conduct basic radiation surveys and select appropriate instruments.
- Apply contamination-control, source-management and exposure-control measures.
- Participate effectively in radiation emergency response and incident investigation.
- Maintain radiation protection records and recognise when specialist or regulatory assistance is required.

Learning outcomes

On successful completion of the course, delegates will be able to:

- | | |
|---|--|
| • Apply intermediate radiation protection principles to workplace situations. | • Identify and assess radiation hazards. |
| • Interpret basic radiation survey and monitoring data. | • Understand external and internal radiation exposure mechanisms. |
| • Apply appropriate dose-control strategies. | • Develop basic radiation protection work plans. |
| • Understand the principles of radiation survey techniques. | • Select appropriate radiation detection and monitoring instruments. |
| • Understand instrument limitations and sources of measurement error. | • Apply contamination-control procedures. |
| • Understand radioactive material and source-control requirements. | • Evaluate workplace radiation protection measures. |
| • Understand personal dosimetry programmes. | • Investigate abnormal radiation readings and exposures. |
| • Apply radiation protection requirements to routine and non-routine work. | • Participate effectively in radiation emergency response. |
| • Maintain appropriate radiation protection records. | • Understand the responsibilities of radiation protection personnel and supervisors. |

Who should attend

Radiation workers who have completed introductory radiation protection training, radiation protection technicians, radiation safety and monitoring personnel, and supervisors of radiation workers. It also suits SHEQ and occupational health and safety professionals, laboratory personnel working with radioactive materials, industrial radiography and NDT personnel, mining and mineral-processing personnel, nuclear and energy-sector personnel, those responsible for radioactive source management, emergency response personnel, and managers with responsibility for radiation safety.

RECOMMENDED ENTRY LEVEL

Radiation Protection Level 1 or an equivalent introductory programme is recommended, together with basic workplace health and safety knowledge and the mathematical and communication skills to follow radiation measurements and dose calculations. This is intermediate training and does not by itself establish statutory or regulatory recognition or a Radiation Protection Officer appointment; the specific competence, experience and jurisdictional requirements for a regulated role should be confirmed with the relevant radiation protection authority and the employer.

Course modules at a glance

Module	Topic	Main competency
01	Review of radiation protection fundamentals	Refreshes radiation types, units, dose and the ALARA principle.
02	Radiation hazard assessment	Assesses external, internal, contamination and source hazards at work.
03	Radiation detection and measurement	Selects and operates survey, dose-rate and contamination instruments.
04	Radiation survey techniques	Plans, conducts and records area, source and contamination surveys.
05	Personal dosimetry and exposure assessment	Uses dosimetry, reads dose records and spots trends to investigate.
06	External and internal exposure control	Controls external exposure and prevents intake and internal exposure.
07	Contamination control and decontamination	Runs contamination zones, monitoring and decontamination.
08	Radioactive source management	Inventories, secures, stores and tracks radioactive sources.
09	Shielding and exposure optimisation	Applies shielding, distance and time to optimise exposure.
10	Controlled and supervised areas	Classifies and controls radiation areas, access and permits.
11	Radiation protection programmes	Supports procedures, monitoring, calibration, records and audits.
12	Radiation emergency response	Takes correct immediate actions in a radiation emergency.

Module	Topic	Main competency
13	Incident investigation	Gathers evidence, finds contributing factors and corrective actions.
14	Radiation protection records and documentation	Maintains survey, dose, source and training records under control.
15	Regulatory and compliance principles	Understands regulatory, employer, worker and RPO responsibilities.

The 3 day programme

Each training day runs 08:30 to 16:00 with morning and afternoon breaks and a lunch break. Timings can be adjusted to suit an in house group or a client's shift pattern.

Day 1: Radiation hazards, measurement and surveying

Time	Session	Key topics	Activity
08:30 to 09:00	Registration, introductions and orientation	Introductions, course objectives, review of prerequisites and participant expectations	Pre-course assessment
09:00 to 10:00	Module 1: Review of radiation protection fundamentals	Radiation fundamentals and types, sources, units and quantities, dose and dose rate, ALARA	Review of workplace exposure-control scenarios
10:00 to 10:15	Tea break		
10:15 to 11:30	Module 2: Radiation hazard assessment	Exposure pathways, external and internal exposure, radiation risk assessment, routine and non-routine work, control measures	Workplace radiation hazard assessment
11:30 to 13:00	Module 3: Radiation detection and measurement	Detection principles, survey instruments, dose-rate meters, contamination monitors, instrument limitations, measurement techniques	Instrument identification and measurement
13:00 to 14:00	Lunch		
14:00 to 15:00	Module 4: Radiation survey techniques	Survey planning, area surveys, source surveys, contamination surveys, recording measurements	
15:00 to 15:15	Tea break		
15:15 to 16:00	Practical exercise: radiation survey	Instrument identification, survey planning, measurement, recording and interpretation	Radiation survey exercise

WHAT DELEGATES TAKE AWAY FROM DAY 1

- Identify and assess external, internal and contamination hazards.
- Select radiation instruments and interpret their readings.
- Plan, conduct and record a basic radiation survey.

Day 2: Dosimetry, contamination and source management

Time	Session	Key topics	Activity
08:30 to 09:00	Day 1 review and knowledge check	Review of key concepts	Knowledge check
09:00 to 10:15	Module 5: Personal dosimetry and exposure assessment	Dosimeters, dose records, exposure trends, abnormal results, investigation levels	Review of sample dose records
10:15 to 10:30	Tea break		
10:30 to 11:30	Module 6: External and internal exposure control	External and internal exposure, routes of intake, exposure prevention, engineering and administrative controls	
11:30 to 13:00	Module 7: Contamination control and decontamination	Contamination monitoring, control zones, protective measures, decontamination, waste considerations	Simulated contamination event response
13:00 to 14:00	Lunch		
14:00 to 15:00	Module 8: Radioactive source management	Source inventory, storage, security, tracking, missing or damaged source response	
15:00 to 15:15	Tea break		
15:15 to 16:00	Practical exercise: contamination and source-control scenario	Identify hazards, establish controls, develop response actions, complete documentation	Contamination and source-control scenario

WHAT DELEGATES TAKE AWAY FROM DAY 2

- Use personal dosimetry and identify dose trends to investigate.
- Run contamination monitoring, zoning and decontamination.
- Inventory, secure and track radioactive sources.

Day 3: Radiation programmes, emergencies and assessment

Time	Session	Key topics	Activity
08:30 to 09:00	Day 2 review	Review of key concepts	
09:00 to 10:00	Module 9: Shielding and exposure optimisation	Shielding, distance, time, work positioning, ALARA, exposure optimisation	Compare work arrangements to reduce exposure
10:00 to 10:15	Tea break		
10:15 to 11:15	Module 10: Controlled and supervised areas	Area classification, access control, warning signs, barriers, work permits, visitor control	
11:15 to 12:15	Module 11: Radiation protection programmes	Radiation safety procedures, worker training, monitoring, surveys, calibration, records, auditing, corrective actions	
12:15 to 13:00	Module 12: Regulatory and compliance principles	Regulatory, employer, worker and Radiation Protection Officer responsibilities, internal rules, reporting requirements	

Time	Session	Key topics	Activity
13:00 to 14:00	Lunch		
14:00 to 15:00	Modules 13 and 14: Emergency response, incident investigation and records	Emergency scenarios, source loss or damage, unexpected exposure, contamination incidents, securing the area, notification, investigation, corrective action and record keeping	Simulated radiation incident response
15:00 to 15:15	Tea break		
15:15 to 15:45	Integrated practical scenario	Radiation hazard identification, radiation survey, dose assessment, exposure controls, contamination controls, emergency response, documentation	Integrated workplace scenario
15:45 to 16:00	Final assessment and course close	Review of key learning points and workplace implementation	Final written assessment and course evaluation

WHAT DELEGATES TAKE AWAY FROM DAY 3

- Apply shielding, distance, time and ALARA to optimise exposure.
- Operate controlled areas and support a radiation protection programme.
- Respond to and investigate a radiation incident and record it.

How the course is taught

The programme is run as practical, competency based training rather than a series of presentations, so delegates rehearse the tasks they are expected to perform in their own working environment. Methods used include:

- Instructor-led presentations
- Technical discussions
- Practical demonstrations
- Radiation survey exercises
- Case studies
- Group exercises
- Workplace scenarios
- Risk assessments
- Emergency simulations
- Knowledge checks
- Final assessment

How delegates are assessed

Formative

- Pre-course assessment
- Continuous knowledge checks

Practical

- Radiation survey exercise
- Contamination and source-control scenario
- Shielding and exposure-optimisation exercise
- Radiation incident response scenario

Summative

- Written assessment
- Final competency assessment

Dates, venues and fees

The programme runs at 20 scheduled dates across the BMC Training network. Every date below is open for registration.

Dates	Venue	Days	Fee per delegate
5 to 7 Oct 2026	Johannesburg	3 days	R13,000
6 to 8 Oct 2026	Nairobi	3 days	US\$1,500
7 to 9 Oct 2026	Pretoria	3 days	R13,000
13 to 15 Oct 2026	Dar es Salaam	3 days	US\$1,500
14 to 16 Oct 2026	Cape Town	3 days	R13,000
19 to 21 Oct 2026	Lusaka	3 days	US\$1,500
20 to 22 Oct 2026	Durban	3 days	R13,000
21 to 23 Oct 2026	Harare	3 days	US\$1,500
26 to 28 Oct 2026	Accra	3 days	US\$1,500
27 to 29 Oct 2026	Lagos	3 days	US\$1,500
3 to 5 Nov 2026	Kigali	3 days	US\$1,500
4 to 6 Nov 2026	Kampala	3 days	US\$1,500
10 to 12 Nov 2026	Cairo	3 days	US\$1,500
11 to 13 Nov 2026	Dubai	3 days	US\$1,500
17 to 19 Nov 2026	Windhoek	3 days	US\$1,500
18 to 20 Nov 2026	Gaborone	3 days	US\$1,500
24 to 26 Nov 2026	Online	3 days	US\$900
1 to 3 Dec 2026	Johannesburg	3 days	R13,000
2 to 4 Dec 2026	Cape Town	3 days	R13,000
9 to 11 Dec 2026	Online	3 days	US\$900

Fees are per delegate. South African venues are priced in rand; other locations and live online in US dollars. Fees exclude 15% VAT where applicable. Group bookings of three or more delegates from the same organisation qualify for a reduced rate. This course is also available as in house training, delivered at your own site on dates that suit your operation.

To book or request a quotation

Email registration@bmctrainings.org, WhatsApp +27 68 540 3736 or call +27 12 012 6265. Full course details and the live calendar are at www.bmctrainings.org.