Radiation Health Risks Training Course

Professional Development Training Course Outline

Category	Public Health	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Radiation exposure is an increasingly critical global health and safety concern, driven by rapid advancements in medical imaging, nuclear energy, industrial radiography, and environmental exposure sources. Understanding ionizing and non-ionizing radiation, biological effects, exposure pathways, and long-term health consequences is essential for professionals working in healthcare, nuclear facilities, research institutions, and environmental safety sectors. Radiation Health Risks Training Course provides a comprehensive foundation in radiation protection, dosimetry, risk assessment, and regulatory compliance, aligning with international safety standards such as ICRP and WHO guidelines.

With the rise of advanced medical diagnostics (CT scans, PET imaging), nuclear technology expansion, and occupational exposure risks, there is a growing demand for skilled professionals who can manage and mitigate radiation hazards effectively. This course equips learners with practical competencies in radiation monitoring, safety protocols, emergency response, and risk communication, ensuring both public safety and workplace protection in high-risk environments.

Programme Curriculum

Radiation Health Risks Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Understand ionizing & non-ionizing radiation principles
2. Analyze radiation health risks & biological effects
3. Apply radiation protection standards (ICRP, WHO, IAEA)
4. Conduct radiation risk assessment & hazard identification
5. Implement occupational radiation safety protocols
6. Use dosimetry monitoring & exposure measurement tools
7. Evaluate medical imaging radiation risks (CT, X-ray, PET)
8. Manage nuclear safety & emergency response procedures
9. Develop radiation shielding & contamination control strategies
10. Interpret radiation dose limits & regulatory compliance
11. Enhance public health risk communication on radiation
12. Apply ALARA principle (As Low As Reasonably Achievable)
13. Strengthen environmental radiation surveillance & mitigation

Target Audience

1. Healthcare professionals (radiologists, radiographers, oncologists)
2. Nuclear power plant engineers and technicians
3. Occupational health and safety officers
4. Environmental scientists and inspectors
5. Medical physics students and researchers
6. Industrial radiography personnel
7. Emergency response and disaster management teams
8. Public health policymakers and regulators

Course Modules

Module 1: Fundamentals of Radiation Science

- Types of radiation (alpha, beta, gamma, neutron)
- Sources of natural and artificial radiation
- Radiation energy and interaction with matter
- Units of measurement (Sievert, Gray, Becquerel)
- Biological ionization mechanisms
- **Case Study:** Hiroshima & Nagasaki radiation exposure analysis

Module 2: Biological Effects of Radiation

- Acute vs chronic radiation effects
- DNA damage and mutation risks

- Radiation sickness and organ impact
- Carcinogenic potential of radiation
- Threshold vs non-threshold models
- **Case Study:** Chernobyl nuclear disaster health outcomes

Module 3: Radiation Protection Principles

- ALARA principle application
- Time, distance, and shielding optimization
- PPE in radiation environments
- Dose limitation strategies
- Workplace safety zoning
- **Case Study:** Hospital radiology department safety redesign

Module 4: Radiation Dosimetry & Monitoring

- Personal dosimeters (TLD, film badge)
- Area monitoring systems
- Real-time radiation detection
- Exposure tracking and reporting
- Calibration techniques
- **Case Study:** Occupational exposure tracking in nuclear plants

Module 5: Medical Radiation Safety

- CT scan and X-ray dose management
- Radiation in cancer therapy
- Pediatric imaging safety concerns
- Justification of medical exposure
- Optimization of imaging protocols
- **Case Study:** Reduction of CT radiation dose in pediatric hospitals

Module 6: Nuclear Safety & Emergency Response

- Nuclear reactor safety systems
- Radiation leak containment procedures
- Emergency evacuation protocols
- Decontamination processes
- Disaster risk communication
- **Case Study:** Fukushima Daiichi nuclear accident response

Module 7: Environmental Radiation Monitoring

- Soil, water, and air radiation sampling
- Radioactive waste management
- Environmental contamination mapping
- Long-term ecological impact assessment
- Public exposure risk modeling
- **Case Study:** Uranium mining site contamination assessment

Module 8: Regulatory Compliance & Global Standards

- IAEA radiation safety framework
- National radiation protection laws
- Workplace audit and inspection systems
- Ethical considerations in radiation use
- Compliance documentation and reporting
- **Case Study:** Regulatory enforcement in industrial radiography firms

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

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