

Nuclear Reactor Basics

Purpose

To provide learners with a high level appraisal of the principles which underpin the design and safe operation of nuclear reactors, highlighting aspects which are relevant to regulatory assessment and scrutiny.

At the end of the course you will be able to

1. Explain key elements of nuclear and reactor physics
2. Assess the design and operation of nuclear reactors from a regulatory perspective
3. Critically review the key engineering and technical issues which underpin nuclear reactor safety
4. Explain the key systems and processes for reactor safety assurance
5. Discuss the role and relevance of research reactors.

Outline content

Overview of nuclear and reactor physics

- Radioactivity
- The fission process and products
- Reactor types
- Initiation and control of nuclear power

Reactor design and operation

- Reactor elements
- Core / coolant
- Containment / control
- Fuel handling / waste management
- Design basis
- Reliability of systems and components
- Aging, inspection and maintenance

Reactor safety

- Safety objectives and defence-in-depth
- Management of safety
- Technical requirements for safety

Assurance

- Radiation protection
- Human factors
- Accident case studies

Research and test reactors

- Purpose and types
- Relation to power reactors
- Accident case studies

Recommended prior study

Education, skills or experience equivalent to undergraduate level

Who should attend

Managers, engineers, operators, safety advisors and risk management practitioners

Module is available as

- Face-to-face (classroom) delivery
- Attendance-only (without assessment), or
- Attendance plus assessment by Risktec consultants

Assessment details

Activities and/or assignments

Other Details

Duration: 1 day

Price

For prices and further information, or to book a course, please contact **Vicky Billingham** at training@risktec.tuv.com

Contact

Risktec Solutions Ltd
Wilderspool Park
Greenall's Avenue
Warrington
WA4 6HL
United Kingdom

Tel +44 1925 611 200

training@risktec.tuv.com
risktec.tuv.com