

## **N21 Geological Disposal of Radioactive Wastes**

### **Summary**

This module presents the techniques, approaches and methods of geo-scientific data acquisition to the scientist, technologist or engineer who does not have an existing grounding in these areas in order to enable a potential geological disposal location to be evaluated. It aims to give:

- an understanding of both the requirement for site investigation with regard to nuclear waste repositories and site investigation methods and best practice, and
- an understanding of the assessment and integration of geological, geotechnical, hydrogeological and geophysical data as an essential part of any investigations necessary for the characterisation of any site, shallow or at depth, which is being proposed as a repository for radioactive waste disposal.

On completion, students should be able to:

- Discuss earth science, hydrogeology and geo-hazards.
- Apply the principles and procedures involved in shallow and deep site investigations to allow them to construct a coherent site report.
- Critically discuss the use of essential data types that are collected by geoscientists in the areas of geological, geotechnical, hydrogeological and geophysical data which need to be acquired for waste disposal site characterisation.

### **Syllabus**

This module will include lectures on the following topics:

- An introduction to basic earth science, hydrogeology, geotechnics, geophysics and geo-hazards
- Site investigation methods and techniques including geophysical (surface and down-hole)
- Soil and rock: description, properties, field testing and laboratory analysis
- Specialist equipment and instrumentation for monitoring and testing
- Groundwater: investigation and assessment, control and management
- Solutions: engineered barriers

Please note that the module does not cover rock mechanics, the construction of a geological disposal facility or waste emplacement. This module does not include pre-printed lecture material: these will be found on the relevant Blackboard site.