

## NUCLEAR TECHNOLOGY EDUCATION CONSORTIUM

### N04 DECOMMISSIONING/WASTE/ENVIRONMENTAL MANAGEMENT

#### Summary

This module focuses upon the environmental and governance aspects of the decommissioning of civil nuclear facilities and radioactive waste management in the UK.

The aims of this module are:

Firstly, to introduce and develop subject knowledge and theoretical, conceptual and analytical skills in environmental and policy issues and principles associated with nuclear decommissioning and legacy waste management in the UK.

Secondly, to provide students with the opportunity to develop and demonstrate subject knowledge and theoretical, conceptual and analytical skills in the application of a Strategic Environmental Assessment, to a topic associated with nuclear decommissioning and legacy waste management in the UK.

On completion of this module, students should be able to:

- Demonstrate an understanding of the scientific, environmental and socio-political issues surrounding the decommissioning of nuclear facilities.
- Understand and critically evaluate the overall environmental principles applicable to plant decommissioning and storage of nuclear waste.
- Demonstrate an understanding of the principal plant and equipment requirements for processing nuclear waste products.
- Understand and critically evaluate the impacts of radioactive waste on the environment and community.
- Demonstrate advanced knowledge and critical understanding of Strategic Environmental Assessments, and an ability to apply that knowledge to case studies in the decommissioning of nuclear facilities and the storage of nuclear waste
- Demonstrate an awareness of the principal sources of data on environmental and socio-political issues surrounding the decommissioning of nuclear facilities and the storage of nuclear waste, and display an ability to acquire and use that material.

#### Syllabus

This module, which will be delivered at Westlakes Science and Technology Park in West Cumbria, will include lectures on the following topics:

- Nuclear decommissioning issues and cases
- Environmental impact assessments
- Exposure pathways and dose assessments
- Strategic Environmental Assessments
- Clean-up, decontamination and remediation
- Waste disposal and storage options
- The governance of waste and decommissioning in the UK
- Social and political issues involved in nuclear facility siting and unsiting

- Waste inventory calculations
- Waste packaging and storage

Plus guest lectures from the nuclear industry

In the second half of the module the student will be working on a case study specifically the Sellafield site Lifetime Plan document. Using the Strategic Environmental Assessment (SEA) process they will focus on the impact of the decommissioning and waste arising issues of that plan, to the environment and the public.