MODULE SPECIFICATION

Part 1: Information			
Module Title	Industrial Nuclear Science and Technology		
Module Code	UFMFBQ-20-3	Level	Level 6
For implementation from	2019-20		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes.

Outline Syllabus: The topics covered in this unit are:

Nuclear Fuel:
Recovery
Enrichment
Fabrication
Reprocessing

Nuclear Reactors:
Reactor Types
Reactor Cores
Steam Generators
Auxiliary Systems

Nuclear Decommissioning:
Waste Categorisation
Waste Retrieval and Removal

Waste Disposal
Environmental Remediation

Neutron Physics:
Binding Energy
Fission Barrier
Reaction Rates
Criticality

Teaching and Learning Methods: The syllabus is designed to give the learner a breadth and depth of knowledge science and technology in the industrial nuclear environment. The learner has the choice of 1 of 4 topics (Fuel Technology, Reactor Systems, Decommissioning or Neutron Physics) to research and further their wider nuclear industry technological and scientific understanding.

Part 3: Assessment

Component A: Oral Examination – The learner is assessed on their ability to explain the applications of nuclear science and technology to a panel of academics and industrial experts. Learners will be asked questions within their chosen topic (Fuel Technology, Reactor Systems, Decommissioning or Neutron Physics).

Component B: Journal Article – The learner is to analyse evaluate the effectiveness of a particular piece of industrial nuclear technology or scientific theory, based on their track of choice. This analysis and evaluation is framed in the form of a journal style article.

The resit assessment tasks for this module will involve a rework and reflective evaluation of the work carried out in the original task.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	Journal article (1500 words)
Examination - Component A	✓	50 %	Oral examination (20 minutes)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	Journal article (1500 words)
Examination - Component A	✓	50 %	Oral examination (20 minutes)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	Reference
Explain and analyse the application of nuclear science and technology in industrial nuclear processes	MO1
Analyse the science and technology used in industrial nuclear processes	MO2
Evaluate the science and technology of a nuclear process (either Nuclear Fuel Cycle; Nuclear Reactor Systems; Nuclear Decommissioning; or Neutron Physics)	MO3

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	282
Total Independent Study Hours:	282
Scheduled Learning and Teaching Hours:	
Face-to-face learning	18
Total Scheduled Learning and Teaching Hours:	18
Hours to be allocated	300
Allocated Hours	300

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/index.html

Part 5: Contributes Towards

This module contributes towards the following programmes of study: