



MODULE SPECIFICATION

Part 1: Information			
Module Title	Industrial Nuclear Science and Technology		
Module Code	UFMFBQ-20-3	Level	Level 6
For implementation from	2018-19		
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		
Contributes towards			
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Educational Aims: See Learning Outcomes.</p> <p>Outline Syllabus: The topics covered in this unit are:</p> <p>Nuclear Fuel: Recovery Enrichment Fabrication Reprocessing</p> <p>Nuclear Reactors: Reactor Types Reactor Cores Steam Generators Auxiliary Systems</p>

STUDENT AND ACADEMIC SERVICES

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)

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Part 4: Teaching and Learning Methods																			
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Module Learning Outcomes</th> </tr> </thead> <tbody> <tr> <td style="width: 20%;">MO1</td> <td>Explain and analyse the application of nuclear science and technology in industrial nuclear processes</td> </tr> <tr> <td>MO2</td> <td>Analyse the science and technology used in industrial nuclear processes</td> </tr> <tr> <td>MO3</td> <td>Evaluate the science and technology of a nuclear process (either Nuclear Fuel Cycle; Nuclear Reactor Systems; Nuclear Decommissioning; or Neutron Physics)</td> </tr> </tbody> </table>	Module Learning Outcomes		MO1	Explain and analyse the application of nuclear science and technology in industrial nuclear processes	MO2	Analyse the science and technology used in industrial nuclear processes	MO3	Evaluate the science and technology of a nuclear process (either Nuclear Fuel Cycle; Nuclear Reactor Systems; Nuclear Decommissioning; or Neutron Physics)										
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Reading List	<p>The reading list for this module can be accessed via the following link: https://uwe.rl.talis.com/index.html</p>																		