

## Liverpool John Moores University

Title: NUCLEAR LIFECYCLE, HAZARDS & RISKS  
Status: Definitive  
Code: **7511ENGRSK** (113876)  
Version Start Date: 01-08-2019

Owning School/Faculty: Maritime and Mechanical Engineering  
Teaching School/Faculty: Risktec Solutions

Team	Leader
Alan Wall	Y

**Academic Level:** FHEQ7  
**Credit Value:** 10  
**Total Delivered Hours:** 8  
**Total Learning Hours:** 100  
**Private Study:** 92

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	6
Tutorial	2

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Coursework Case Study approx. 2000-3000 words	100	

### Aims

*To provide students with a broad understanding of the nuclear lifecycle, its risks and hazards and the standard risk mitigation techniques.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Identify and analyse the nuclear risks/hazards associated with a process or facility relevant to any stage of the nuclear cycle
- 2 Devise an effective means of avoiding each hazard or mitigating its consequences

### **Learning Outcomes of Assessments**

The assessment item list is assessed via the learning outcomes listed:

Case study	1	2
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### **Outline Syllabus**

- *Introduction to the nuclear lifecycle*
- *Risk and safety regulations in the nuclear industry*
- *Hazards and controls in fuel manufacture and transport – criticality*
- *Hazards and controls in reactor operation – overpower/loss-of-cooling/loss-of-containment*
- *Hazards and controls in transport and storage of irradiated fuel – direct radiation/dispersion*
- *Hazards and controls in reprocessing irradiated fuel – criticality/loss-of-containment*
- *Hazards and controls in long term storage of radioactive waste*

### **Learning Activities**

By a combination of lectures and exercises

### **Notes**

This module aims to provide students with a broad understanding of the lifecycle of a nuclear power facility, its risks and hazards, risk-related regulations and the standard risk mitigation techniques.

The assessment for this module is coursework.