Liverpool John Moores University

Title:	NUCLEAR LIFECYCLE, HAZARDS & RISKS
Status:	Definitive
Code:	**7511RSKDL** (118770)
Version Start Date:	01-08-2019
Owning School/Faculty:	Maritime and Mechanical Engineering
Teaching School/Faculty:	Maritime and Mechanical Engineering

Team	Leader
Zaili Yang	Y

Academic Level:	FHEQ7	**Credit Value:**	10	**Total Delivered Hours:**	16.5
Total Learning Hours:	100	**Private Study:**	83.5		

Delivery Options
Course typically offered: Runs Twice - S1 & S2

Component	Contact Hours
Lecture	8
Online	.5
Tutorial	8

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	Essay		95	
Reflection	Test&refl		5	

Aims

To provide students with an overview 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	Quantify the risk to human health for simple accident scenarios
3	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:

Essay	1	2
Online test & reflection	3	

Outline Syllabus

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

A combination of slides and notes, exercises, discussions, interactive web activities and supported self study.

Notes

This module aims to provide students with an overview 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 an essay cdombined with online activities (e.g. tests, discussions, etc.).