

Liverpool John Moores University

Title: Engineered Risk Control Systems & Performance (Nuclear)
Status: Definitive
Code: **7531RSKDL** (118799)
Version Start Date: 01-08-2019

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

Team	Leader
Alan Wall	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	Essay	45	
Technology	Tech	Technological Task	50	
Reflection	Test&Refl	Online Test and Reflection	5	

Aims

To provide an understanding of Engineered Safety Systems and the need for Performance Standards and Technical Integrity Verification Schemes over the lifecycle of the plant.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically review the application of engineered risk control systems in the Nuclear industry;
- 2 Analyse a nuclear plant to logically deduce the relevant engineered safeguard systems;
- 3 Devise Performance Standards for nuclear safeguards;
- 4 Illustrate how the engineered control systems studied contribute to maintenance of technical integrity over the lifetime of the nuclear plant.

Learning Outcomes of Assessments

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

Essay	4	
Technological task	2	3
Online test & Reflection	1	

Outline Syllabus

Definition of an Engineered Safeguard System and the need for Performance Standards with an emphasis on practices employed within the Nuclear Industry

** Examples of Engineered Safeguard Systems*

** Defining Performance Standards*

** Functional requirements*

** Availability & Reliability (more detail in Availability, Reliability, Maintainability (ARM) Analysis module)*

** Survivability*

** Interdependencies*

** Performance Assurance*

** Verification of Performance*

** Technical Integrity assurance throughout an assets lifecycle*

** Codes and standards*

** Material selection*

** Design reviews*

** Fabrication tests, certification etc.*

** Construction reviews and inspections*

** Commissioning tests*

** Preventative maintenance systems*

Learning Activities

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

Notes

The aim of this module is to provide an understanding of Engineered Safeguard Systems and the need for Performance Standards and Technical Integrity Verification Schemes with a particular emphasis on the Nuclear Industry. The assessment for this module is a combination of essay, technological task and online activities (e.g. tests, discussions, etc.).