Liverpool John Moores University

Title:	Engineered Risk Control Systems & Performance (Oil & Gas)
Status:	Definitive
Code:	**7530RSKDL** (118798)
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		45	
Technology	Tech		50	
Reflection	Test&Refl		5	

Aims

To provide an understanding of Safety Critical Elements and the need for Performance Standards and Technical Integrity Verification Schemes.

Learning Outcomes

After completing the module the student should be able to:

1 Critically review the application of risk control systems in the Oil and Gas and Process Industries;
2 Analyse a process plant to logically deduce the relevant Safety Critical Elements;
3 Devise Performance Standards for oil and gas Safety Critical Elements;
4 Illustrate what assurances are required regarding engineered risk control systems to ensure technical integrity over the lifetime of the asset.

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

Major accident causes
Definition of Safety Critical Elements and the need for Performance Standards
Examples of Safety Critical Elements
Environmental and Business Critical Elements
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*
- *Design reviews*
- *Fabrication tests, certification etc.*
- *Construction reviews and inspections*
- *Commissioning tests*
- *Preventative maintenance systems*
- *Optimum maintenance scheduling*

Learning Activities

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

Notes

The purpose of this module is to provide an understanding of Engineered Risk Control Systems and the need for performance standards and technical integrity verification schemes. This involves looking at definitions for Engineered Risk Control Systems and the need for performance standards. Performance assurance and verification of performance will be discussed as technical integrity assurance throughout an asset's lifecycle.
The assessment for this module is a combination of a technological task, an essay and online activities (e.g. tests, discussions, etc.).