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Title: Engineered Risk Control Systems and Performance (Oil & Gas)
 Status: Definitive
 Code: **7548RTC** (120381)
 Version Start Date: 01-08-2019
 Owing 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:** 16.5
Total Learning Hours: 100 **Private Study:** 83.5

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	8
Online	.5
Tutorial	8

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	An essay question comprising several component parts, based around a case study, up to 4,000 words long.	95	
Test	AS2	Individual and group activities eg. quiz, forum.	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 (SCEs)
- 3 Devise performance standards for SCEs
- 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:

4000 word essay	2	3	4
Individual and group work	1		

Outline Syllabus

Aims and introduction

Definition of a Safety Critical Element (SCE) and the need for performance standards

Environmental and business critical elements

Identifying SCEs

Defining performance standards

Functional requirements

Availability and reliability

Survivability

Interdependencies

Performance assurance / verification of performance

Technical integrity assurance throughout an asset's lifecycle:

Codes and standards

Design reviews

Fabrication tests, certification etc.

Construction reviews and inspections

Commissioning tests

Preventive maintenance systems / optimum maintenance scheduling

Learning Activities

A combination of lectures, exercises and supported self study.

Notes

This module provides an understanding of engineered risk control systems and the need for performance standards and technical integrity verification schemes. This involves exploring the concept of engineered risk control systems and the need for identifying Safety Critical Elements (SCEs) and performance standards. Assuring and verifying performance against the performance standards will be discussed as an integral part of technical integrity assurance throughout an asset's lifecycle.

Assessment is in the form of an essay combined with activities (e.g. exercises, discussions, etc.). The delivery modes for the module elements are explained below.

Lecture (using slides and notes): will be delivered by classroom based teacher (face to face) or online self-study (distance learning) or mixture of the two (blended learning).

Tutorial/Activities (exercises and reviews): will be delivered by classroom based teacher (face to face) or online activities with teacher feedback/virtual classroom (distance learning) or mixture of the two (blended learning).

Tutor supported online: will be delivered by email support prior to assessment submission (face to face) or tutor feedback activities, virtual classrooms and email support (distance learning) or mixture of the two (blended learning).