Liverpool John Moores University

Title:	Asset Integrity Risk Management
Status:	Definitive
Code:	**7541RTC** (120374)
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:**	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 e. g. quiz, forum.	5	

Aims

To provide an in-depth understanding of the ways to manage major incident risk throughout the asset lifecycle, from concept selection through operations to decommissioning.

Learning Outcomes

After completing the module the student should be able to:

1	Examine the causes of major accidents and the importance of managing barriers (plant, people, processes)
2	Analyse the asset integrity risk management process and justify the importance of managing integrity through the asset lifecycle
3	Analyse the importance of assuring the integrity of engineered barriers, competency of key personnel, and quality of procedures
4	Devise key performance indicators at the facility level and discuss the significance of performance standards and creating a process safety culture
5	Identify, justify and apply the techniques and approaches that are used to effectively reduce risks as low as reasonably practicable (ALARP).

Learning Outcomes of Assessments

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

4000 word essay	1	2	3	4	5
Ind and group activities	1	5			

Outline Syllabus

Preventing major incidents by managing barriers
'Swiss cheese' model of accident causation
'Bowtie' barrier model (plant, people, processes)
Fundamentals of risk management

Assuring plant performance
Engineered barriers and performance standards
Maintenance, inspection, testing
Leading and lagging performance indicators
Verification

Assuring people performance
Human factors in design
Competence
Mindful leadership and process safety culture

Assuring processes performance
Process Safety Management (PSM) framework, procedures and assessment
Barrier-based audits
Management review

Reducing risk to As Low As Reasonably Practicable (ALARP)
Inherently safer design and risk control hierarchy

Value assurance, tollgate reviews, safety case and technical risk and safety studies
Risk treatment
ALARP assessment.

Learning Activities

A combination of lectures, exercises and supported self study.

Notes

The purpose of the course is to provide an in-depth understanding of the ways to manage major incident risk throughout the asset lifecycle, from concept selection through operations to decommissioning. The course walks through the essentials of risk as a concept, and explains the processes and tools that companies are using today to prevent major incidents. Industry case studies are used to illustrate key issues.

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).