Liverpool John Moores University

Title:	Hazard and Operability (HAZOP) Study
Status:	Definitive
Code:	**7552RTC** (120385)
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 enable students to understand the uses, application and limitations of HAZOP study methodology. To prepare students for participating in HAZOPs.

Learning Outcomes

After completing the module the student should be able to:

1	Critically review the HAZOP technique identifying its strengths and weaknesses
2	Analyse how the HAZOP technique is applied at the different stages of a project's lifecycle such as FEED, detailed design, revalidation and decommissioning
3	Define how the HAZOP technique can be used for different types of process operation, i.e. continuous and batch
4	Demonstrate how the LOPA technique can assist in the determination of the suitability of safeguards
5	Prepare for a HAZOP workshop, determine the skills and actions necessary to lead a HAZOP and how to generate a HAZOP report
6	Critique examples of HAZOP worksheets and recommendations.

Learning Outcomes of Assessments

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

4000 word essay	1	2	3	4	5	6
Individual and group work	4	6				

Outline Syllabus

Introduction to risk assessment
Basic engineering terminology
Background to HAZOP
Overview of HAZOP process
The HAZOP process in detail
Recording and report writing
HAZOP preparation
HAZOP competencies
HAZOP facilitation
Typical HAZOP failings
Revalidation HAZOPs
Batch and procedural HAZOPs
Introduction to LOPA

Learning Activities

A combination of lectures, exercises and supported self study.

Notes

The purpose of this module is for students to gain an understanding of the technique, application and limitations of the HAZOP study methodology, one of the most

commonly used hazard identification methods. This module does not provide detailed HAZOP facilitator training but does cover the skills needed and the work that the facilitator must do as part of the HAZOP Study.

The methodology will be analysed, definitions used within the HAZOP methodology will be discussed and students will have the opportunity to practise the technique. The students will critique example HAZOPS and critically review HAZOP recording methods. Team roles and responsibilities will be analysed, as will the management of HAZOP teams and the facilitation of HAZOP studies.

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).