Liverpool John Moores University

Title:	Fault Tree and Fault Tree Analysis
Status:	Definitive
Code:	**7550RTC** (120383)
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 principles of fault and event tree analysis and to perform their own assessments

Learning Outcomes

After completing the module the student should be able to:

1	Understand the principles of fault tree analysis and event tree analysis and when it is appropriate to apply them
2	Design and analyse fault tree models incorporating appropriate reliability data for components, human error and dependent failures
3	Generate and analyse event tree models.

Learning Outcomes of Assessments

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

4000 word essay	1	2	3
Individual and group work	2	3	

Outline Syllabus

Introduction to Fault Tree Analysis
Fault Tree Construction
Minimal Cut Sets
Basic Event Reliability Data
Dependent Failures and Human Errors
Fault Tree Quantification
Fault Tree Analysis Advantages & Disadvantages
Introduction to Event Tree Analysis
Event Tree Construction and Quantification
Fault and Event Tree Software
Further Study and Additional Exercises

Learning Activities

A combination of lectures, exercises and supported self study.

Notes

The aim of this module is to enable students to understand the principles of fault and event tree analysis and to perform their own assessments. The module will look at the development of fault tree and event tree models and populating them with suitable reliability data, human errors and dependent failures. It will then consider quantification of the models and how they can be used to consider potential improvements.

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).