

## Liverpool John Moores University

Title: FAULT TREE & EVENT TREE ANALYSIS  
Status: Definitive  
Code: **7515RSKDL** (118774)  
Version Start Date: 01-08-2019

Owning School/Faculty: Maritime and Mechanical Engineering  
Teaching School/Faculty: Maritime and Mechanical Engineering

Team	Leader
Zaili Yang	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 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:

Essay	1	
Technological Task	2	3
Online test & reflection	1	

### **Outline Syllabus**

1. *Introduction to Fault Tree Analysis*
2. *Fault Tree Construction*
3. *Minimal Cut Sets*
4. *Basic Event Reliability Data*
5. *Dependent Failures and Human Errors*
6. *Fault Tree Quantification*
7. *Fault Tree Analysis Advantages & Disadvantages*
8. *Introduction to Event Tree Analysis*
9. *Event Tree Construction and Quantification*
10. *Fault and Event Tree Software*
11. *Further Study and Additional Exercises*

### **Learning Activities**

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

The assessment for this module is a combination of an essay, a technological task and online activities (e.g. tests, discussions, etc.).

