

Liverpool John Moores University

Title: Physical Effects Modelling
Status: Definitive
Code: **7091RTC** (127356)
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

Team	Leader
Ben Matellini	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: Summer

Component	Contact Hours
Lecture	8
Online	.5
Tutorial	8

Grading Basis: 50 %

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 2,500 words long.	95	
Test	AS2	Individual and group activities e. g. quiz, forum.	5	

Aims

To enable students to categorise the range of hazardous physical effects that can occur in a given situation, assess the impact of the different physical effects, and discuss the uses and limitations of physical effect modelling.

Learning Outcomes

After completing the module the student should be able to:

- 1 Analyse an industrial plant/installation to determine expected physical effects in the event of an incident.
- 2 Evaluate, by applying physical effects modelling techniques, how these physical effects affect people and plant.
- 3 Justify which of the available modelling techniques/software is appropriate to analyse physical effects in different circumstances, whilst understanding the limitations of these techniques.

Learning Outcomes of Assessments

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

Essay	2	3
Test	1	

Outline Syllabus

Introduction to physical effects modelling – what are physical effects and why model them?

Source term release and discharge calculation:

Dispersion analysis

Fire modelling

Explosion modelling

Subsea releases / oil dispersion.

Human and plant vulnerability to physical effects

Commercial and public domain software tools.

Learning Activities

A combination of lectures, exercises and supported self study.

Notes

The aim of this module is to enable students to understand the range of hazardous physical effects that can occur, an overview of human and equipment vulnerability to physical effects, and the uses and limitations of physical effect modelling. This includes an introduction to physical effects modelling and the opportunity for some hands-on practice of physical effects calculations.

Assessment is in the form of an essay combined with activities (e.g. exercises, discussions, etc.).

The module is delivered via distance learning, described as follows:

Lecture (using slides and slide notes): Online self-study

Tutorial/Activities (Exercises and reviews): Online activities with teacher feedback, and virtual classrooms

Tutor-supported Online: Tutor feedback for activities, virtual classrooms and email support