

## Liverpool John Moores University

Title: MAINTENANCE ENGINEERING  
Status: Definitive  
Code: **4510NCCG** (129429)  
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering  
Teaching School/Faculty: Nelson Campus

Team	Leader
Christian Matthews	Y

**Academic Level:** FHEQ4  
**Credit Value:** 20  
**Total Delivered Hours:** 60  
**Total Learning Hours:** 200  
**Private Study:** 140

### Delivery Options

Course typically offered: S1, S2, Sum, NS2 (S2 for Jan)

Component	Contact Hours
Lecture	60

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	Case Study	Case Study Analysis	50	
Report	Assignment	Assignment	50	

### Aims

*This module introduces students to the importance of equipment maintenance programmes, the benefits that well-maintained equipment brings to an organisation and the risk factors it faces if maintenance programmes and processes are not considered or implemented. Topics included in this module are: statutory regulations, organisational safety requirements, maintenance strategies, safe working and maintenance techniques. On successful completion of this module students will be able to explain the importance of compliance with statutory regulations associated with asset maintenance, illustrate maintenance techniques adopted by the industry,*

*work safely whilst performing maintenance tasks in an industrial environment and identify inspection and maintenance techniques.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Analyse the impact of relevant statutory regulations and organisational safety requirements on the industrial workplace.
- 2 Differentiate between the merits and use of different types of maintenance strategies in an industrial workplace.
- 3 Illustrate competence in working safely by correctly identifying the hazards and risks associated with maintenance techniques.
- 4 Apply effective inspection and maintenance techniques relative to a particular specialisation e.g. mechanical or electrical.

## **Learning Outcomes of Assessments**

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

Case Study Analysis	1	2
Assignment	3	4

## **Outline Syllabus**

### *Statutory regulations*

*Maintenance strategies: component failure, bathtub curve, design life, periodic maintenance; reactive, preventive, predictive and reliability centred maintenance*

*Safety concerns: rules for employee safety, development and implementation of safe schemes of work, lone working, permit to work (PTW), emergency procedures, hazard identification and assessment of risk associated with identified hazard, use of control measures, production of a Risk Assessment & Method Statement for a maintenance procedure*

*Maintenance techniques: isolation and making safe, adherence to PTW process and shift changeover procedures, in-service (live) preventative maintenance*

*Compliance with manufacturer's recommended inspection and maintenance procedures, using manufacturer's data as case studies*

*Measurements: electrical and mechanical, mechanical operations test, functional tests e.g. exercise switching mechanisms, recording data and maintenance records*

## **Learning Activities**

### **Lectures**

These will not normally be traditional didactic lectures in which the student plays little active part, but will be delivered in small groups of up to 20 students in which their interaction with their tutor is a key ingredient of their learning experience.

Students will receive approximately 30 hours of taught material, supported by in-

class exercises and discussions designed to help student assimilate learning and to provide early informal feedback on their progress.

#### Independent Study

Students are expected to undertake personal reading and research into topic areas that have been stimulated from the lectures and seminars. This reading will enhance their academic work and enable valid contribution to lectures and seminars.

#### VLE support

This will provide links to academic web-sites and on-line journals, facilitate group discussion outside of the classroom, access to outline lecture notes, and provide students with assessment details.

#### **Notes**

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