

## Liverpool John Moores University

Title: Engineering Principles  
Status: Definitive  
Code: **4501ELESBC** (120209)  
Version Start Date: 01-08-2016

Owning School/Faculty: Electronics and Electrical Engineering  
Teaching School/Faculty: The Sino-British College

Team	Leader
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**Academic Level:** FHEQ4      **Credit Value:** 10      **Total Delivered Hours:** 50  
**Total Learning Hours:** 100      **Private Study:** 50

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Tutorial	24

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam	70	2
Technology	Report	Online exercises	30	

### Aims

*This module is intended to provide students with a good appreciation of the mechanical properties and behaviours that influence electrical systems, and introduce how parameters are measured*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Use appropriately basic measurement principles and data treatment
- 2 Describe basic mechanical parameters such as heat, temperature, stress and strain
- 3 DEfine basic measurement systems for key mechanical parameters
- 4 Identify the impact mechanical factors may have on electrical systems

### **Learning Outcomes of Assessments**

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

Exam	1	2	3	4
Online exercises	1	2	3	4

### **Outline Syllabus**

*Units, precision, accuracy*  
*Measurement systems, transducers and sensors*  
*Error analysis*  
*Heat, temperature*  
*Forces, stress, strain*  
*Sensors for mechanical parameters*  
*Gyroscopes*  
*Applications*

### **Learning Activities**

A series of lectures and tutorials

### **Notes**

This module will provide students with a basic grasp of fundamental mechanical parameters, their measurement, and their impact on electrical circuits.