Engineering Principles

Module Information

2022.01, Approved

Summary Information

Module Code	4500EDLBHG
Formal Module Title	Engineering Principles
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Beaconhouse Group

Learning Methods

Learning Method Type	Hours
Online	66

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module is intended to provide students with a good appreciation of - the physical properties and behaviours that influence electrical systems, - how parameters are measured- communications systems

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Identify appropriate sensors and apply basic measurement principles
MLO2	2	Describe basic physical parameters such as heat, temperature, stress and strain and their impact on electrical systems
MLO3	3	Discuss the principles of communications systems and networks
MLO4	4	Solve simple problems in communications systems and networks

Module Content

Outline Syllabus	Units, precision, accuracyMeasurement systems, transducers and sensorsError analysisHeat, temperatureForces, stress, strainSensors for mechanical parametersGyroscopes, position and orientationThe effect of the physical environment on electrical systemsSine Waves – Frequency, Phase, Amplitude; Time and frequency domain representation; Spectrum – Bandwidth and Frequency responsePropagation – fibre, copper, radio; Signal Strength; power and energy; dBNoise and Interference; SNRBaseband– binary line coding, detection, timing, differential codes, block codes,Passband –modulation, AM, FMDigital and Analogue– comparison, uses, conversion, sampling
Module Overview	
Additional Information	This module will introduce students to fundamental mechanical parameters, their measurement, and their impact on electrical circuits, and the principles behind the communication of data.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Exam	60	2	MLO1, MLO2, MLO3, MLO4
Essay	Online exercises	40	0	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Russell English	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings