

#### Summary Information

Module Code	4502NCCG
Formal Module Title	Engineering Science
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
Nelson and Colne College Group

#### Learning Methods

Learning Method Type	Hours
Lecture	60

#### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks
SEP-PAR	PAR	September	12 Weeks

SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks
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## Aims and Outcomes

Aims	This module introduces students to the fundamental laws and applications of the physical sciences within engineering and how to apply this knowledge to find solutions to a variety of engineering problems. Among the topics included in this module are: international system of modules, interpreting data, static and dynamic forces, fluid mechanics and thermodynamics, material properties and failure, and A.C./D.C. circuit theories.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Examine scientific data using both quantitative and qualitative methods.
MLO2	2	Determine parameters within mechanical engineering systems
MLO3	3	Explore the characteristics and properties of engineering materials.
MLO4	4	Analyse applications of A.C./D.C. circuit theorems, electromagnetic principles and properties.

## Module Content

Outline Syllabus	Dimensions and SI units Static and dynamic forces: calculation of reaction forces and accelerations. Newton's laws of motion: conservation of linear and angular momentum, conservation of energy Fluid mechanics: hydrostatics, incompressible flow Thermodynamics: laws, heat transfer, sensible and latent heat Materials: Simplified atomic structure of metals, simple polymers, etc., properties of materials, materials testing Electricity: d.c. circuit theory, circuit theorems and their applications, single phase steady state sinusoidal a.c. passive circuits Magnetism: magnetic fields and fluxes, induction
Module Overview	
Additional Information	

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Essay	Written Assignment	50	0	MLO1, MLO2, MLO3
Test	Multiple-choice online test	50	1.5	MLO4

## Module Contacts

### Module Leader

Contact Name	Applies to all offerings	Offerings
Christian Matthews	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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