

MODULE CODE: ACDA4007
TITLE: Physics (OME)
DATED: 15/08/2018

LEVEL: 4
CREDITS: 20

JACS CODE: H610

AIM(S)

- To provide a basic understanding of the principles and applications associated with general aspects of physics.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Demonstrate an understanding of basic mechanics and structural aspects of physics and engineering science, with complementary analysis of appropriate problem examples.

INDICATIVE CONTENT

- Mechanics and structures
 - Free Body Diagrams
 - Reaction forces
 - Static equilibrium
 - Hooke's Law
 - Direct stress/strain, Shear stress/strain
 - Shear force and bending moment diagrams
 - Simple theory of elastic bending/torsion
 - Second moments of area, Neutral axis, Parallel axis theorem
 - Polar second moments of area
- Dynamics
 - Friction
 - Linear and Angular motion – inertia, radius of gyration etc.
 - Newton's Laws
 - Simple Harmonic Motion
 - Thermodynamics
 - Work/Energy/Power
 - Thermo-physics
- Pneumatics and Hydraulics
 - Awareness of pneumatics and hydraulics

LEARNING AND TEACHING STRATEGY

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	60	30%
Independent learning	140	70%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

☒ Written exam ☐ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written examination	2 hours	50%

Assessment Component 2

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written Lab Report	2000 words	50%

Assessment Summary

Activity type	Percentage
Written exam	50%
Coursework	50%
Practical	0
TOTAL	100%

READING LIST

Module Code	ACDA4007	
Module Title	Physics (OME)	
Classification	Reading List entry	Electronic*
Essential	F. Beer, E. Johnson et al, Mechanics of Materials, McGraw-Hill, 2015	☒
Further	Mechanics of Engineering Materials, P.P. Benham, R.J. Crawford, C.G. Armstrong, Mechanical Science, W. Bolton , Wiley-Blackwell (2006)	☐
Further	Mechanical Technology, D.H. Bacon, Butterworth-Heinemann , 1998	☒
Further	Journals IEEE Xplore, ACM Digital Library	☒